

# **IC-304 Plus Print Controller**

**Version 2.0**

## **Service Manual**

**English**

731-01326A-EN



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# Safety Precautions

The following sections contain safety information regarding avoiding personal injury, before and while servicing the IC-304 print controller.

## General Safety

### **Follow these rules to ensure general safety:**

- Lift up the IC-304 print controller using the handle and not using the front panel. Lifting it up using the front panel may result in major injury.
- Before opening the IC-304 print controller covers, ensure that the unit has been switched off. Switching off, only the ON/OFF power button, will leave some circuits energized. For complete disconnection from the supply, the main power cable must also be disconnected from the power source.

## Battery Replacement

- Only qualified service personnel should replace the battery.
- Handle and dispose of the used batteries according to Lithium battery manufacturer's instructions.

## Static Electricity

When handling static-sensitive electrical devices (such as: electronic boards, disk drives, or memory modules):

- Use a field service grounding kit (chain, mat, and wrist strap).
- After removing the component from the system or from its protective wrapper, place it on a grounded anti-static mat and not on a carpet or any other unshielded surface.
- After removing a board from a station, store it in an anti-static bag.

# Sicherheitsmaßnahmen

Die folgenden Abschnitte enthalten Sicherheitsinformationen zur Vermeidung von persönlichen Verletzungen vor und während der Wartung des IC-304 print controller.

## Allgemeine Sicherheit

### **Befolgen Sie diese Regeln, um allgemeine Sicherheit zu gewährleisten:**

- Heben Sie den IC-304 print controller nur am Griff hoch und berühren Sie nicht die Frontblende. Wenn Sie ihn an der Vorderblende hochheben, kann dies zu schweren Verletzungen führen.
- Bevor Sie die Schutzhülle des IC-304 print controller öffnen, stellen Sie sicher, dass die Einheit ausgeschaltet wurde.  
Wenn Sie das Gerät nur mit der ON/OFF-Schalttaste ausschalten, bleiben einige Stromkreise aktiviert. Um eine vollständige Trennung von der Stromversorgung zu erreichen, muss der Hauptlastschalter von der Stromquelle getrennt sein.

## Batterieaustausch

- Die Batterie sollte nur von qualifiziertem Kundendienstpersonal ausgetauscht werden.
- Handhaben und entsorgen Sie die verbrauchten Batterien entsprechend den Anweisungen des Lithiumbatterie-Herstellers.

## Reibungselektrizität

Beim Umgang mit statik-empfindlichen elektrischen Geräten (wie z.B.: elektronische Karten, Plattenlaufwerke oder Speichermodule):

- Benutzen Sie einen Erdungsmontagesatz für den Außendienst (Kette, Matte und Manschetten).
- Nach dem Entfernen des Teils aus dem System oder aus seiner Schutzhülle stellen Sie es auf eine geerdete anti-statische Matte und nicht auf einen Teppich oder auf andere ungeschützte Oberflächen.
- Nachdem Sie die Steckkarte aus einer Station entfernt haben, bewahren Sie sie in einer anti-statischen Tüte auf.

# Medidas Preventivas de Seguridad

Las secciones a continuación contienen información de seguridad para evitar lesiones, antes y durante la prestación de servicio de mantenimiento y reparaciones del IC-304 print controller.

## Seguridad General

**Siga las siguientes reglas para garantizar la seguridad general:**

- Levante el IC-304 print controller utilizando el mango y no el panel frontal. Al levantarla utilizando el panel frontal se pueden ocasionar serias lesiones.
- Antes de abrir las cubiertas del IC-304 print controller, asegúrese de que la unidad ha sido apagada.  
Si se apaga utilizando el botón ON/OFF solamente, algunos circuitos permanecen activados. Para una desconexión completa del suministro de energía, el cable de alimentación principal se debe desconectar de la fuente de alimentación.

## Sustitución de la batería

- Sólo un ingeniero de mantenimiento y reparaciones debe reemplazar la batería.
- Manipule y deshágase de las baterías usadas de acuerdo a las instrucciones del fabricante de la batería de litio.

## Electricidad estática

Cuando se manejan dispositivos eléctricos sensibles a electricidad estática (como por ejemplo: placas electrónicas, unidades de disco, o módulos de memoria):

- Use un kit de puesta a tierra para reparaciones y mantenimiento en terreno (cadena, felpudo y banda de muñeca).
- Después de sacar el componente del sistema o de su lugar de envoltura de protección, colóquelo en un felpudo antiestático puesto a tierra y no en una alfombra o cualquier otra superficie no protegida.
- Después de sacar una placa de una estación, almacénela en una bolsa antiestática.

# Mesures de sécurité

Les sections suivantes contiennent des informations sur les mesures de sécurité à prendre pour éviter les blessures personnelles, avant et pendant l'entretien du IC-304 print controller.

## Mesures générales de sécurité

**Suivez ces règles pour garantir une sécurité générale :**

- Soulevez le IC-304 print controller par la poignée et non par le panneau frontal. L'utilisation du panneau frontal pour soulever le dispositif peut entraîner des blessures graves.
- Avant d'ouvrir les couvercles du IC-304 print controller vérifiez que l'unité a été éteinte.  
Si vous ne mettez hors tension que l'interrupteur ON/OFF, certains circuits resteront sous tension. Pour une déconnexion totale de l'alimentation en courant, le câble d'alimentation principale doit aussi être déconnecté du bloc d'alimentation.

## Remplacement de la batterie

- Le remplacement de la batterie est une opération réservée au personnel de service qualifié.
- Manipulez et jetez les batteries utilisées selon les instructions du fabricant de batterie au Lithium.

## Electricité statique

Lors de la manipulation des périphériques électriques sensibles à l'énergie statique (tels que : les cartes électroniques, les lecteurs de disque ou les barrettes de mémoire) :

- Utilisez une trousse de mise à terre (une chaîne, une carpette et un bracelet anti-statique).
- Après avoir enlevé le composant du système ou de son emballage de protection, placez-le sur une carpette anti-statique mise à la terre et non sur une carpette ou sur n'importe quelle autre surface non protégée.
- Après l'enlèvement d'une carte d'un poste, conservez-la dans un emballage anti-statique.

## Precauzioni di Sicurezza

Le seguenti sezioni contengono informazioni di sicurezza riguardanti l'evitamento di lesioni personali, prima e durante l'uso del IC-304 print controller.

### Sicurezza generale

#### **Seguite queste istruzioni per assicurare la sicurezza generale:**

- Alzate il IC-304 print controller usando la maniglia e non usando il pannello frontale. Alzandolo usando il pannello frontale potrebbe causare una grave lesione.
- Prima di aprire la copertura del IC-304 print controller, assicuratevi che l'unità sia stata spenta.  
Spegnendo l'unità, solo il pulsante ON/OFF lascierà qualche circuito alimentato. Per arrivare a una sconnessione completa dalle fonti di alimentazione, il cavo di alimentazione principale deve essere staccato dal connettore di alimentazione.

### Sostituzione della Batteria

- La batteria dovrebbe essere cambiata solo dal personale di assistenza qualificato.
- Disfatevi delle batterie usate a seconda delle istruzioni del fabbricante riguardanti batterie Lithium.

### Elettricità Statica

Quando gestite dispositivi di sensitività elettro-statica (come: schede elettroniche, dischi rigidi o moduli di memoria):

- Usate un campo di servizio di attrezzatura messa a terra (catena, stuioia, cinghia da polso).
- Dopo avere rimosso il componente dal sistema o dal cartoccio protettivo, mettetela su una stuioia anti-statica a terra e non su un tappeto o ogni altra superficie non protetta.
- Dopo avere rimosso una scheda dalla stazione, custoditela in una borsa anti-statica.

# Veiligheidsmaatregelen

In de volgende secties worden veiligheidsmaatregelen behandeld om persoonlijk letsel voor en tijdens het bedienen van de IC-304 print controller te voorkomen.

## Algemene veiligheid

**Volg onderstaande regels op om uw algemene veiligheid te verzekeren:**

- Gebruik het handvat om de IC-304 print controller op te tillen, en niet het voorpaneel. Wanneer u het voorpaneel gebruikt bij het optillen kan dit resulteren in ernstig letsel.
- Zorg ervoor dat de IC-304 print controller is uitgeschakeld voordat u de **deksels** opent.  
Wanneer u alleen de ON/OFF schakelaar uitschakeld zullen bepaalde electriciteitscircuits geactiveerd blijven. Om de stroomtoevoer volledig af te sluiten moet de electriciteitskabel uit het stopcontact zijn.

## De batterij vervangen

- De batterij mag alleen door bevoegd servicepersoneel worden vervangen.
- Volg de instructies van de fabrikant op voor het vervangen en het wegwerpen van gebruikte lithium batterijen.

## Statische electriciteit

Wanneer u met elektrisch statisch geladen onderdelen omgaat (zoals: electronische kaarten, harde schijven of geheugenmodi):

- Gebruik een onderhoudsaardingspakket (ketting, mat, en een polsbandje).
- Nadat u het onderdeel van het systeem verwijderd of uit zijn beschermend omhulsel neemt, plaatst u dit op een geaarde anti-statische mat en niet op een vloerkleed of enig andere onbeschermd oppervlakte.
- Nadat u een kaart van een station heeft verwijderd plaatst u deze in een anti-statisch zak.

## Precauções de segurança

As seguintes sessões contêm informações de segurança com respeito a como evitar feridas corporais, antes e no decorrer do uso do IC-304 print controller.

### Segurança geral

**Siga as seguintes regras para assegurar uma segurança geral:**

- Levante o IC-304 print controller usando o cabo e não o painel frontal. Ao levantá-lo através do painel frontal pode causar sérios danos.
- Antes de abrir as tampas do IC-304 print controller, certifique-se de que a unidade foi desligada.  
Ao desligar somente com o botão ON/OFF fará com que alguns circuitos sejam ativados. Para uma desconexão completa da fonte de alimentação, o cabo de alimentação principal também deve ser desconectado da fonte de alimentação.

### Troca de bateria

- A bateria deve ser substituída somente por uma equipe de serviço qualificada.
- Manipule e jogue fora as baterias usadas de acordo com as instruções do fabricante de baterias de Lítio.

### Eletricidade estática

Ao lidar com dispositivos sensíveis à energia estática (como: placas eletrônicas, unidades de disco ou módulos de memória):

- Utilize um kit de aterramento de serviço (cadeia, esteira e faixa de pulso).
- Após a remoção do componente do sistema ou do seu invólucro de proteção, coloque-o em uma esteira anti-estática e não em um tapete ou qualquer outra superfície desprotegida.
- Após remover uma placa de uma estação, armazene-a em uma bolsa anti-estática.

# 1

# First Time Setup and Configuration

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## 1.1 Connecting and Turning On the IC-304 Print Controller

For more information, see the Easy Setup Steps chart supplied with your IC-304 print controller.

### 1.1.1 Connecting the IC-304 Print Controller to Your Printer

Connect the IC-304 print controller to your printer as illustrated in Figure 1, below.

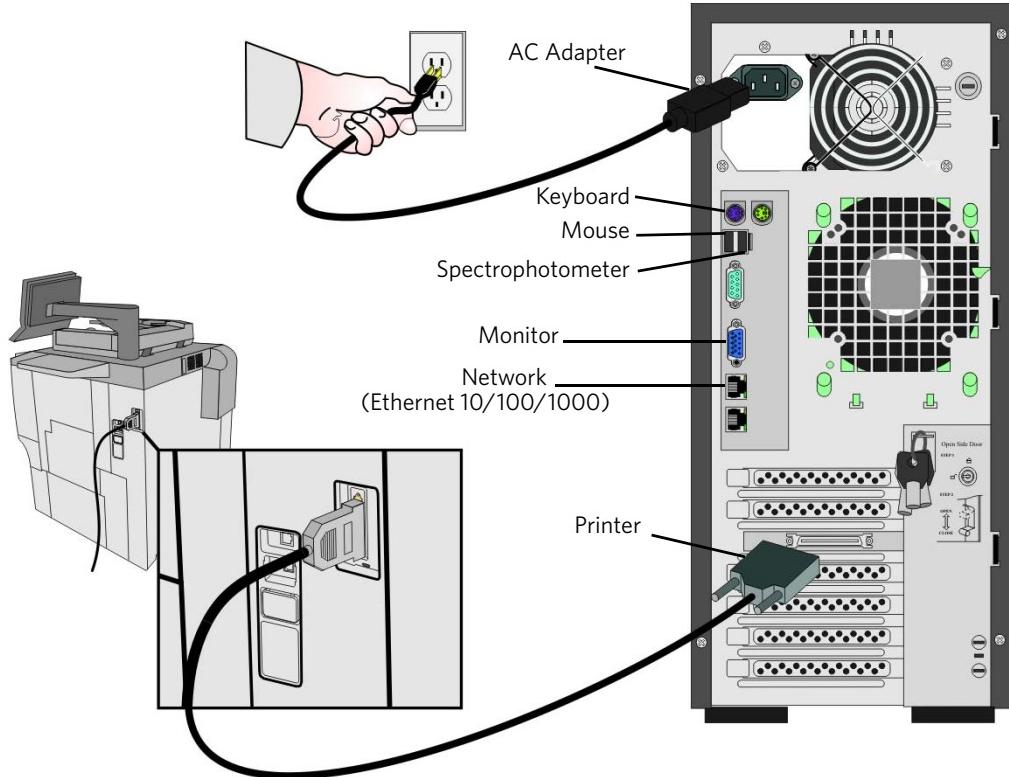
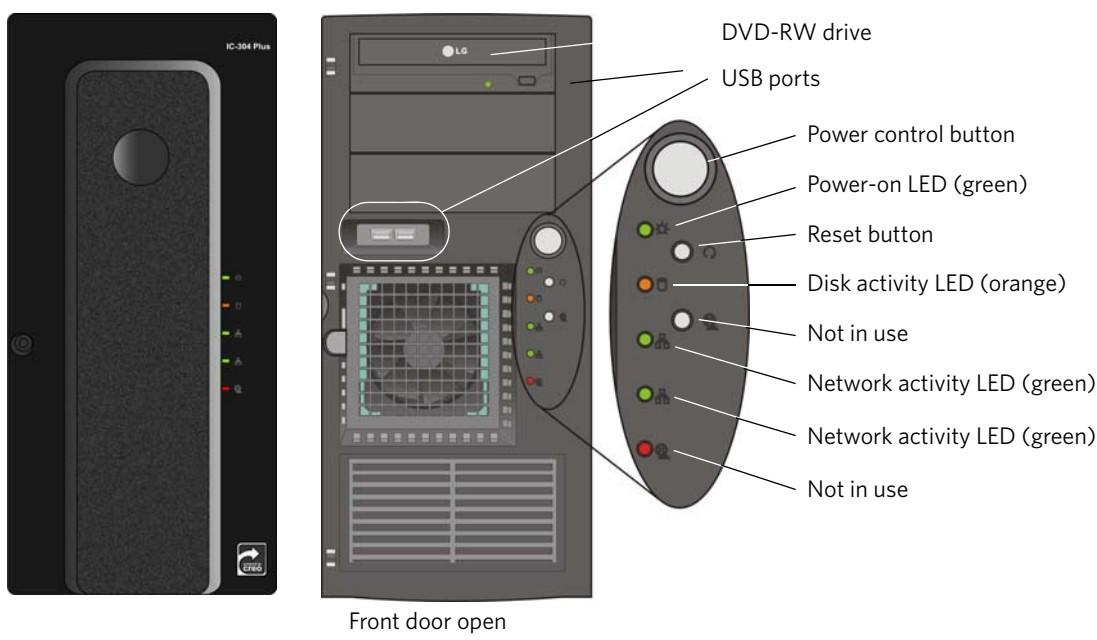


Figure 1: Connecting the IC-304 print controller

## 1.1.2 External LEDs and Controls

This section identifies the external LEDs and controls of your IC-304 print controller.



Front door closed

Figure 2: Front door controls and indicators

LED/Button	What does it do?
Power control button	Turns the IC-304 print controller on or off
Power-on LED	Illuminates steady green when the IC-304 print controller is turned on
Reset button	Restarts the IC-304 print controller
Disk activity (hard disk) LED	Blinks orange when a hard disk drive is in use
Network activity LED	Blinks green when the network is in use

## 1.1.3 Turning On the IC-304 Print Controller

Before connecting the IC-304 print controller to an AC power source, review *Safety Information (Multi-Language)* on page ix.

### To turn on the IC-304 print controller:

1. Connect the monitor's AC power cable to an AC power source and turn on the monitor.
2. Connect the server's AC power cable to an AC power source.

3. Wait 20 seconds before pressing the power control button on the IC-304 print controller (see Figure 2 on page 3). The ON/OFF LED on the front panel illuminates a steady green.

After the system startup is complete, the Windows desktop appears.

4. If a power failure occurs while the server is turned on, the server will restart automatically when power is restored.

**To turn off the IC-304 print controller:**

We recommend that you perform an orderly shutdown of the operating system before turning off the server.

1. Press the power control button to turn off the server.
2. Disconnect the AC power cable from the AC power source.



**WARNING:** Switching off only the power control button will leave some circuits energized. For complete disconnection from the supply, the main AC power cable must also be disconnected from the AC power source.

## 1.2 Installing the Windows XP Professional Operating System

After turning on the IC-304 print controller for the first time, the system automatically performs disk striping, and the following message appears.



- Click **OK**.

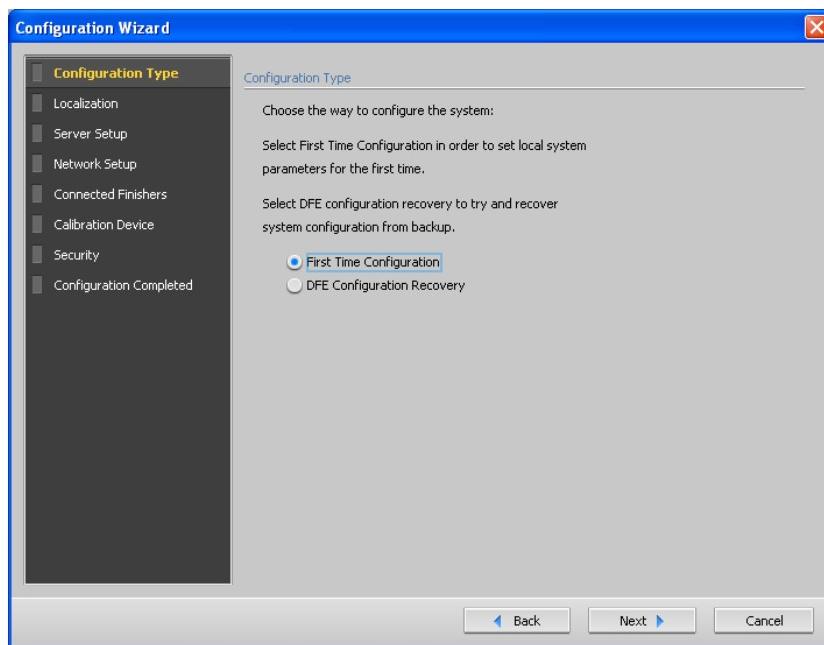
The Configuration Wizard appears.

## 1.3 Configuration Wizard (First-time Software Setup)

The first-time software setup is performed using the Configuration Wizard.

**Note:** During the configuration process, when prompted to restart your computer, click **No**. At the end of the Configuration Wizard, you will be prompted to restart your system.

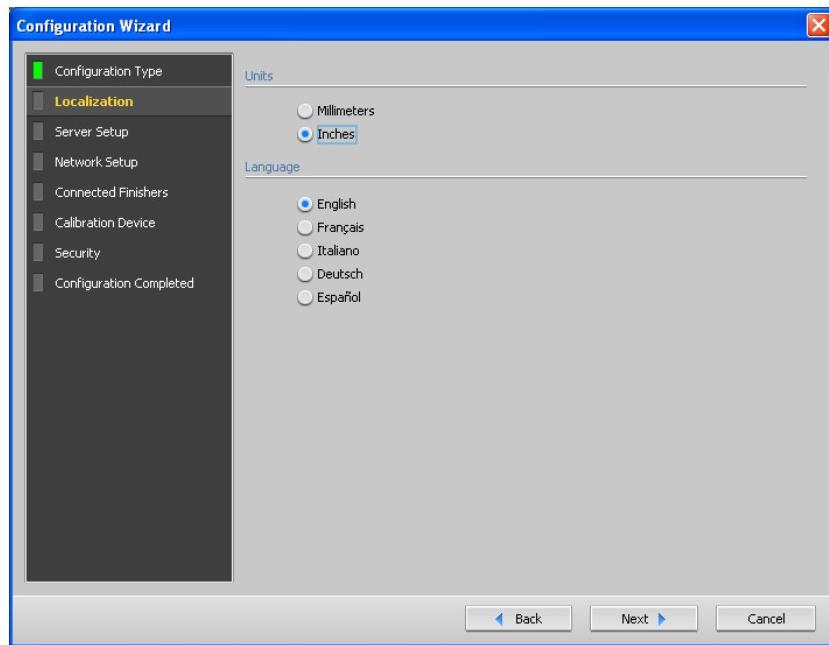
### 1.3.1 Choosing the Configuration Type



- Verify that **First time Configuration** is selected, and click **Next**.

### 1.3.2 Setting the Localization Parameters

You configure the measurement unit and language in the Localization window.



1. In the **Units** area, select the required default measurement unit.
2. In the **Language** area, select the required interface language.
3. Click **Next**.

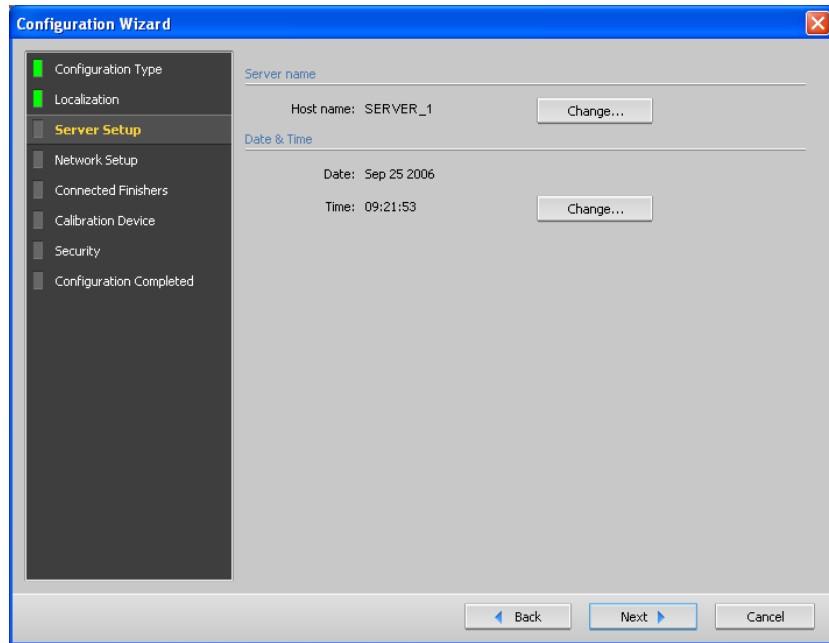
### 1.3.3 Configuring the Server Setup

You configure the host name and date and time in the Server Setup window.

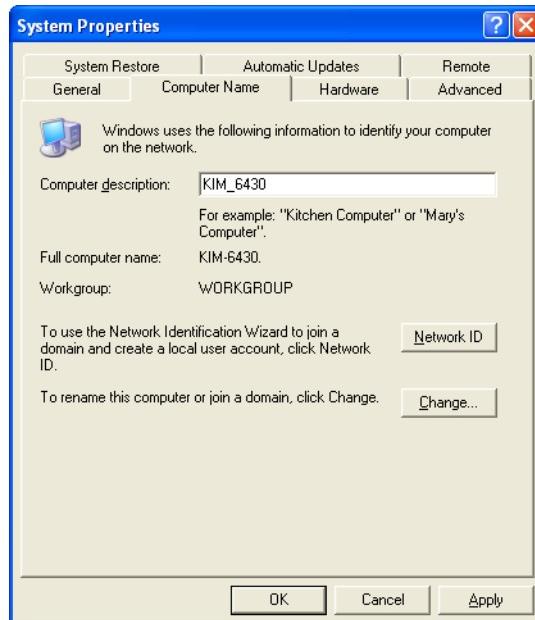
#### Configuring the Host Name

The initial computer name (host name) of the IC-304 print controller is created automatically during the factory installation. Check with your system administrator in order to change the computer name.

**Note:** The host name is taken from the computer name you typed during the Windows XP operating system Fast Installation. If you reinstalled your operating system, see *Reinstalling the Operating System (Windows XP)* on page 40.



1. In the **Server name** area, verify that the correct host name appears and proceed to *Configuring the Network Setup* on page 9.  
If you need to change the host name, click the **Change** button.  
The System Properties dialog box appears.



2. Click the **Change** button.



**Attention:** Do not change the Workgroup or Domain in step 3 unless instructed to do so. If you are changing the Domain/Workgroup, verify that you have the user name and password for the Domain/Workgroup.

3. In the **Computer name** box, type the new name for the computer. If you would like to change the **Workgroup** or the **Domain** in which your computer appears, type the new name in the corresponding area and click **OK**.

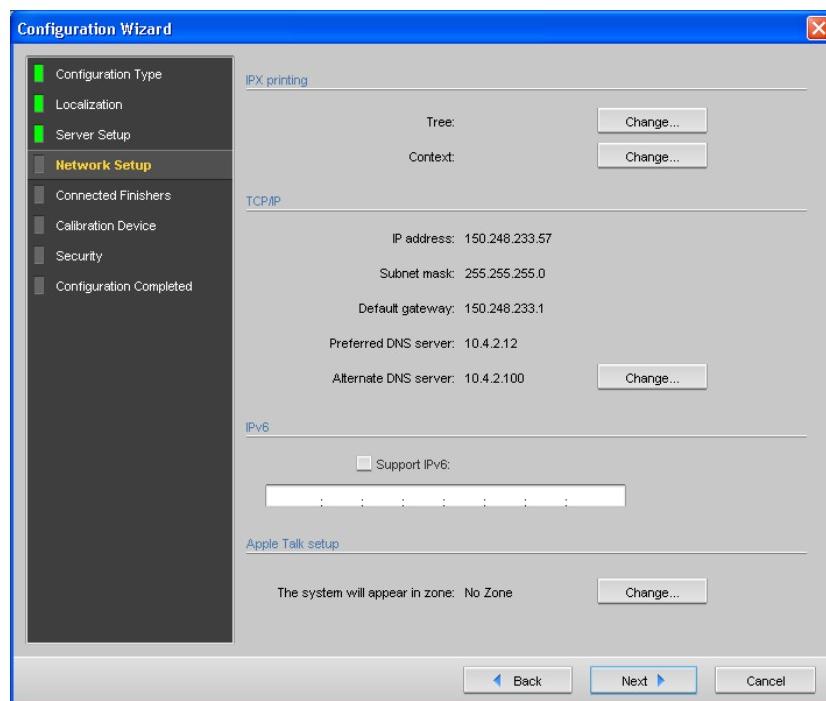
A message appears to inform you that changes will take effect only after restarting the computer.

4. Click **OK**.
5. In the System Properties dialog box, click **OK**.

**Note:** During the configuring process, when prompted to restart your computer, click **No**. At the end of the Configuration Wizard, you will be prompted to restart your system.

### 1.3.4 Configuring the Network Setup

You configure the IP address and AppleTalk® software zone in the Network Setup window.

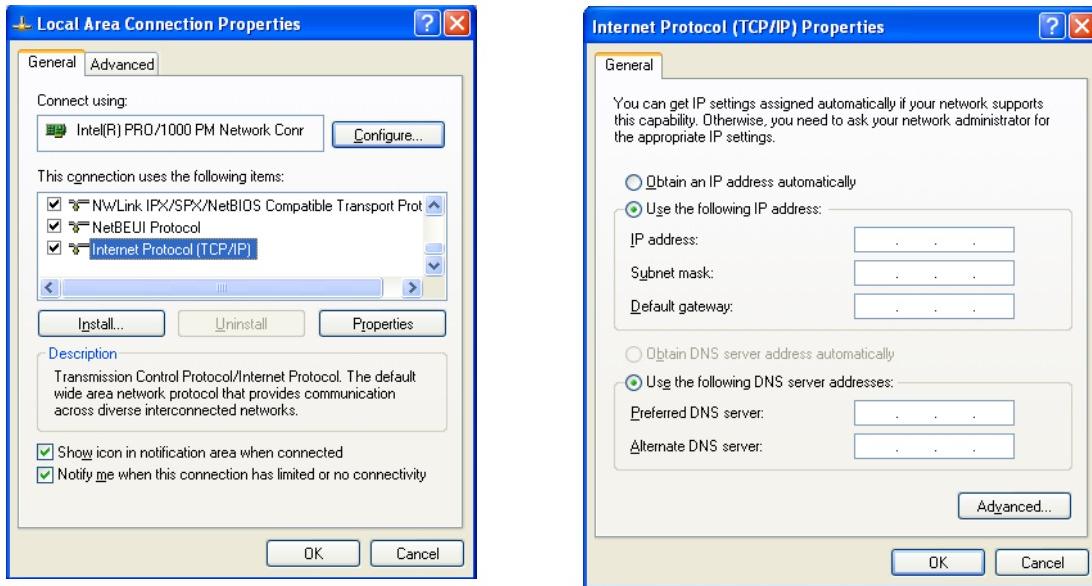


#### Configuring the IP Address

1. In the **TCP/IP Setup** area, verify that the IP address is correct. If not, click the **Change** button.

The Local Area Connection Properties dialog box, followed by the Internet Protocol (TCP/IP) Properties dialog box appears.

2. In Internet Protocol (TCP/IP) Properties dialog box, select **Use the following IP Address**.



3. In their corresponding boxes, type the new **IP address**, **Subnet mask** and **Default gateway** (if applicable).

**Note:** After an operating system reinstall, by default, the IC-304 print controller is set to DHCP server configuration.

4. Click **OK**.

**Note:** When prompted to restart your computer, click **No**. You will be prompted at the end of the Configuration Wizard to restart your computer.

5. In the Local Area Connection Properties dialog box, click **OK**.

## Configuring the IPv6 Address

1. In the **IPv6 Address** area, verify the address is correct. If it is correct, proceed to *Configuring the AppleTalk Zone*. If the settings are not correct, select the **Support IPv6** check box to enable IPv6 addressing.

The following message appears:

"You need to restart the application for the new settings to take effect".

2. Click **OK**.

3. Type the new IPv6 address (according to the network administrator).

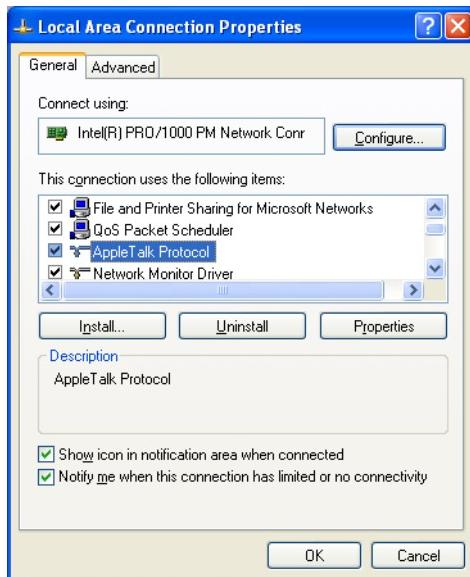
## Configuring the AppleTalk Zone

This option enables you to change the AppleTalk software network zone in which your IC-304 print controller appears.

**Note:** This option only applies to networks that contain Macintosh computers.

1. In the **Apple Talk setup** area, verify that the displayed AppleTalk software zone is correct and click **Next**. Otherwise, click the **Change** button.

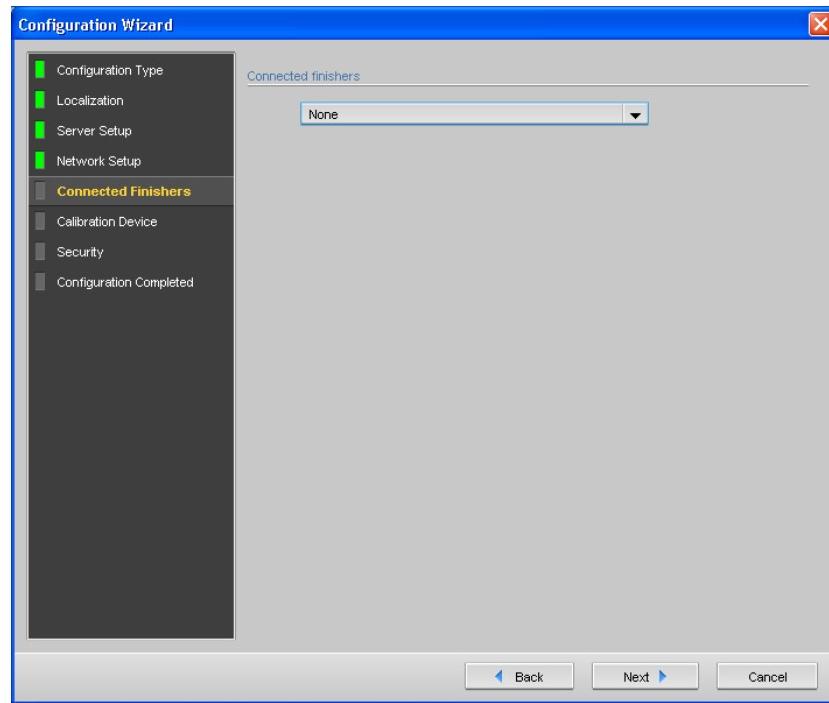
The Local Area Connection Properties dialog box appears, followed by the AppleTalk Protocol Properties dialog box.



2. Select the **Accept inbound connections on this adapter** check box.
3. From the **This system will appear in zone** list, select the required zone, and click **OK**.
4. In the Local Area Connection Properties dialog box, click **OK**.
5. In the Network Setup window, click **Next**.

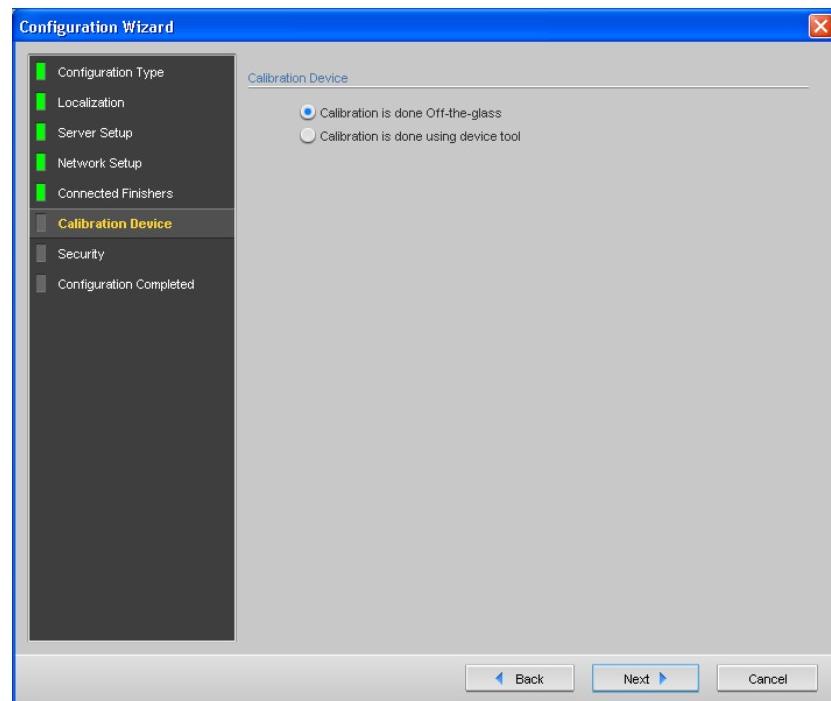
### 1.3.5 Configuring the Connected Finishers

You configure the finisher in the Connected Finishers window.



**Important:** Select only the finisher attached to your printer. Selecting another finisher could result in incorrect finishing results.

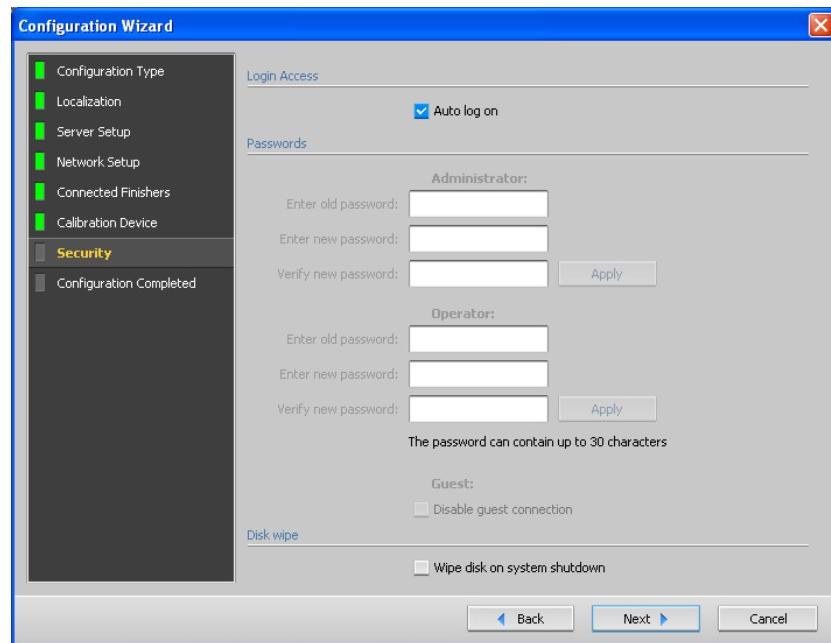
### 1.3.6 Setting the Calibration Device



- Select a calibration device setting and click **Next**.
  - **Calibration is done Off-the-glass**—uses the scanner platen to measure the calibration charts
  - **Calibration is done using device tool**—uses the spectrophotometer to measure the calibration charts

## 1.3.7 Defining the Security Settings

### Changing the Administrator and Operator Password (Optional)



#### To change the administrator password:

1. In the **Passwords** area, clear the **Auto log on** check box.
2. In the **Enter new password** box, type a new password.
3. Retype the new password to confirm it and click **Apply**.

#### To change the operator password:

1. In the **Passwords** area, clear the **Auto log on** check box.
1. In **Operator** area, type a new password.
2. Retype the new password to confirm it and click **Apply**.

If any error messages appear, see *Error Messages* on page 84 for descriptions and actions to be taken.

If a Novell network is running IPX protocol on your computer, proceed to *Installing and Configuring Novell Client* on page 21.

### Disk Wipe

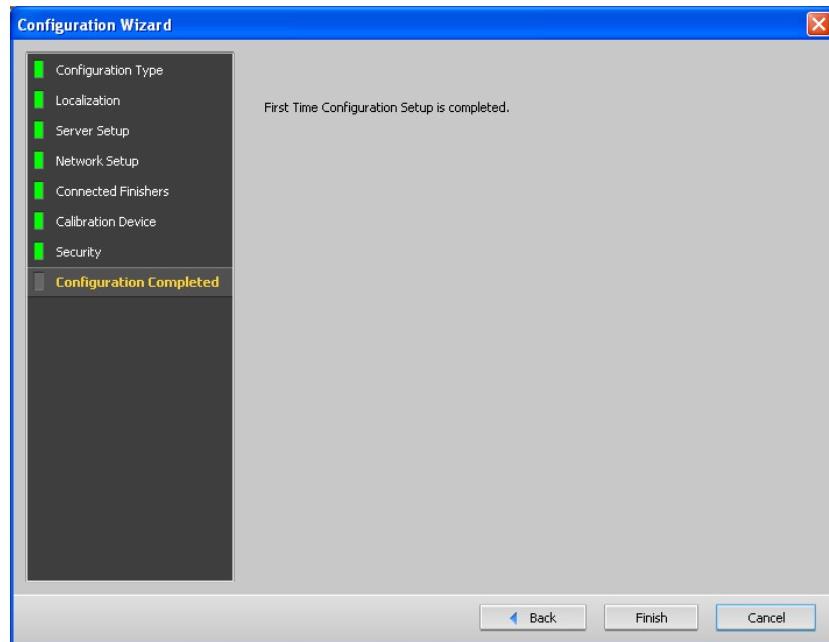
- In the **Disk Wipe** area, select the **Wipe disk on system shutdown** check box.

To configure the Disk Wipe utility so that Disk Wipe is performed automatically on shutdown, see *Setting Up the Disk Wipe Utility* on page 28.

Click **Next** to continue with the configuration.

### 1.3.8 Completing the Configuration

After the installation is complete, the following window appears.



1. Click **Finish**.

The configuration settings are automatically backed up.

After a few moments, the IC-304 print controller workspace appears on your screen.

2. Exit the IC-304 print controller software. If you made any changes to the configuration, these changes will only take effect if the IC-304 print controller is shut down and then restarted.
3. Quit any other software that may be running and, from the Windows **Start** menu, select **Shut Down > Restart > OK**.

**Note:** Make sure to turn off your printer before you restart the IC-304 print controller. After the IC-304 print controller restarts and the IC-304 print controller workspace appears, you can turn on the printer.

After restarting, the IC-304 print controller software splash screen appears.



**IC-304 Print Controller**

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4. The IC-304 print controller software is automatically loaded and launched.  
You have completed First Time Setup and Configuration.

## 1.4 Configuring McAfee VirusScan

The current recommended virus protection software is McAfee VirusScan® software Enterprise version 8.0.0. After installing VirusScan software, perform the following configuration procedures.

**Important:** Running VirusScan software could slow down process time and affect the overall performance of the server.

VirusScan software version 8.0.0 is supported on Windows 2000 and Windows XP operating systems only. Use an earlier version of the software with an earlier version of the operating system.

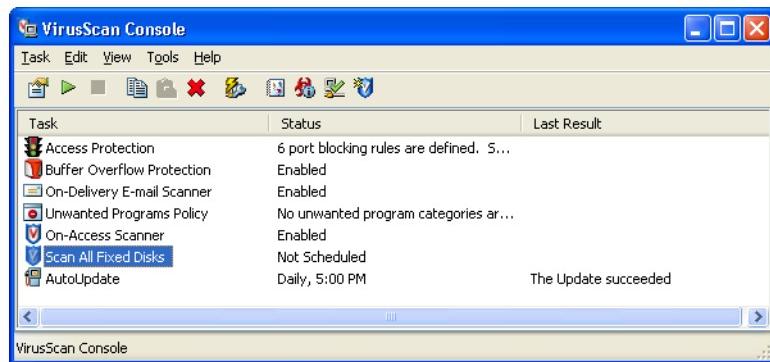
We will continue to update our virus protection software recommendations according to software performance and market availability.

Once a year, it is the responsibility of the site manager to obtain the latest version of the antivirus software and installation procedure. The site manager must also regularly download the latest antivirus definitions from the relevant Internet site.

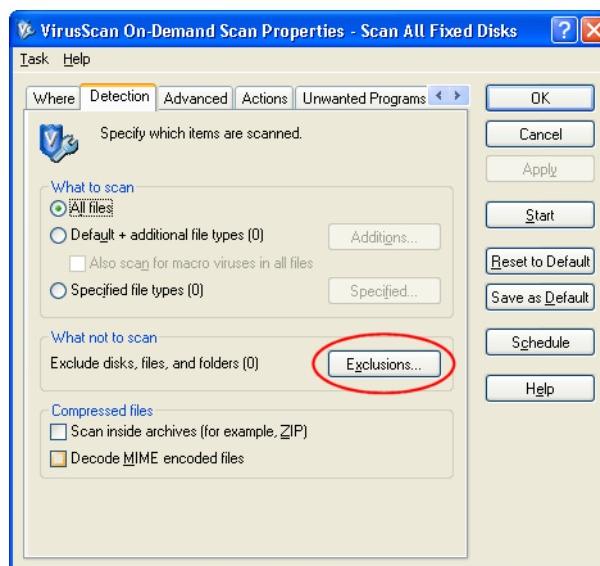
**Note:** The following VirusScan software configuration procedure is subject to change without notice and the relevant documentation will not be updated.

## 1.4.1 Configuring the Scan All Fixed Disks Settings

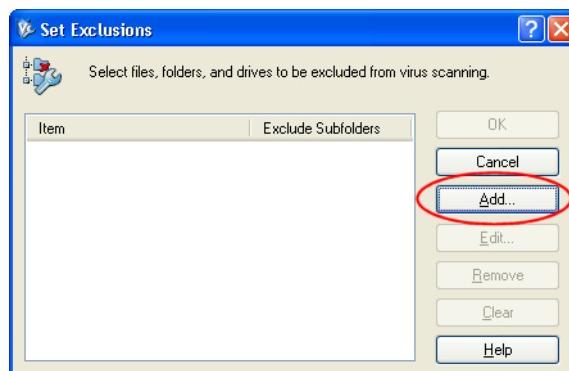
- From the taskbar, right-click the **VShield** icon and select **VirusScan Console**.



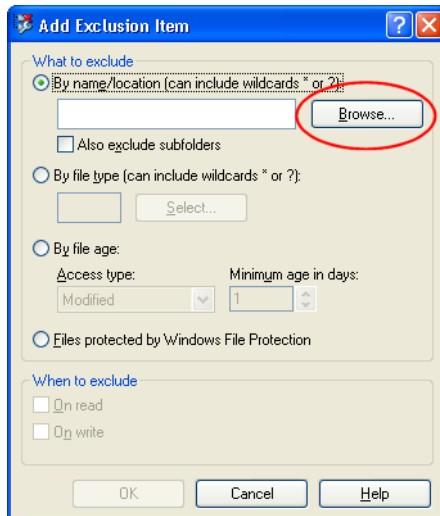
- In the **Task** column, right-click **Scan All Fixed Disks** and select **Properties**.
- Click the **Detection** tab.



- In the **What not to scan** area, click **Exclusions**.



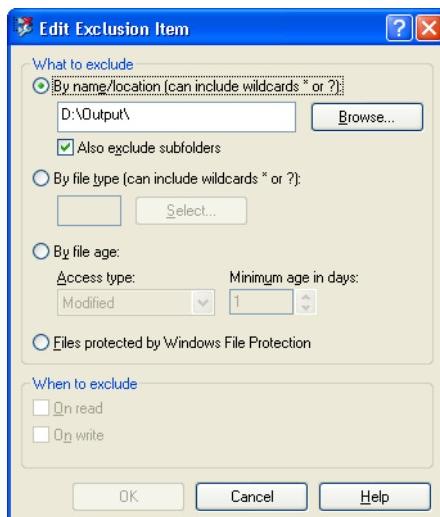
5. Click **Add**.



6. Click **Browse**.

7. In the Browse for Folder window, locate the **D:\Output** folder and click **OK**.

The **D:\Output** folder path appears.

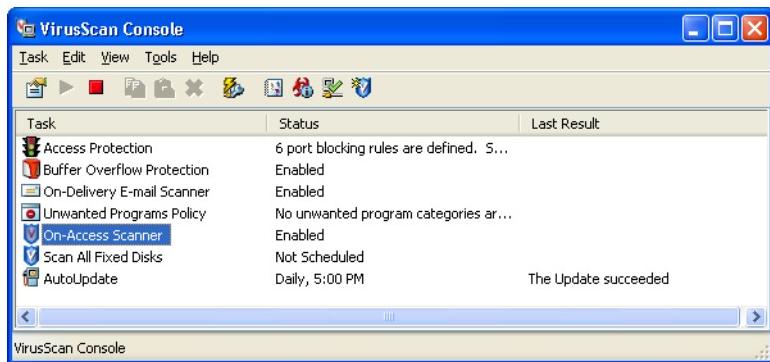


8. Select the **Also exclude subfolders** check box and click **OK**.

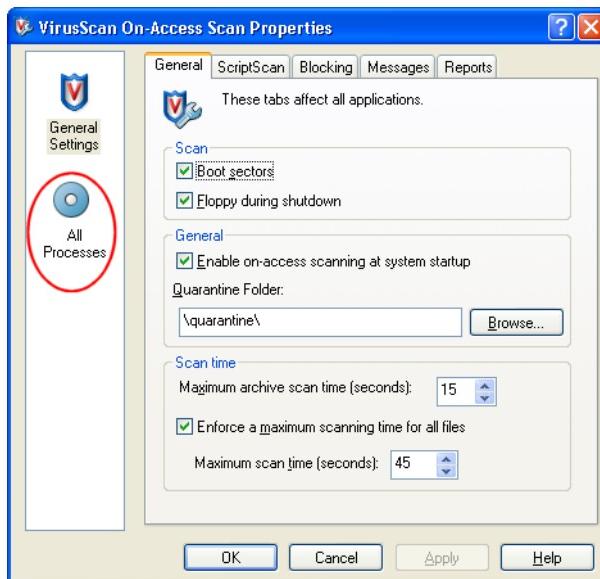
9. In the Set Exclusions dialog box, click **OK**, and again click **OK**.

## 1.4.2 Configuring the On-Access Scan Settings

1. Return to the VirusScan Console window.

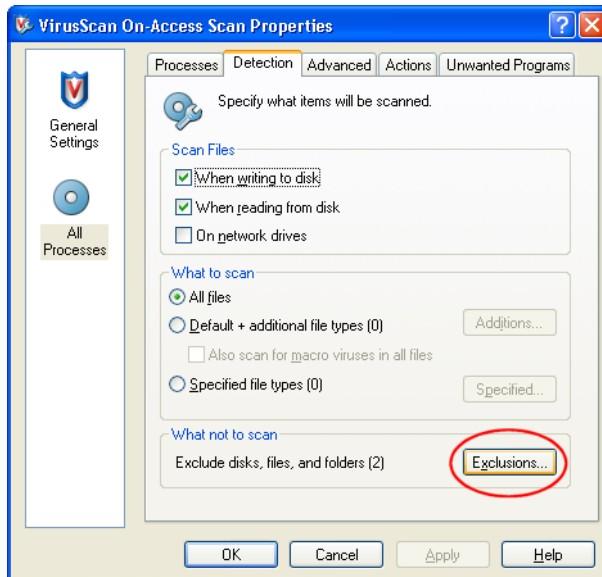


2. In the **Task** area, right-click **On-Access Scanner** and select **Properties**.

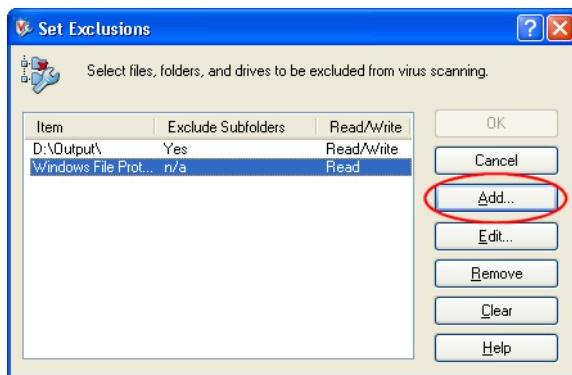


3. On the left of the window, click the **All Processes** icon.

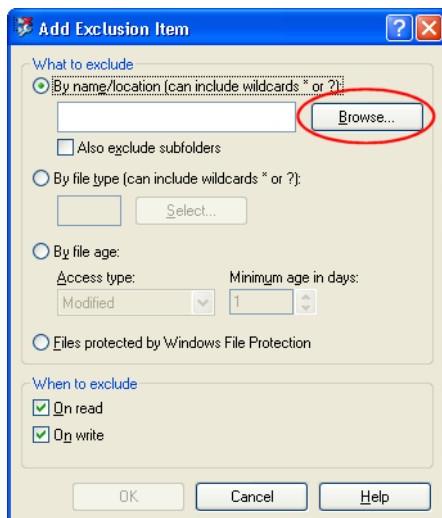
4. Select the **Detection** tab.



5. In the **What not to scan** area, click **Exclusions**.

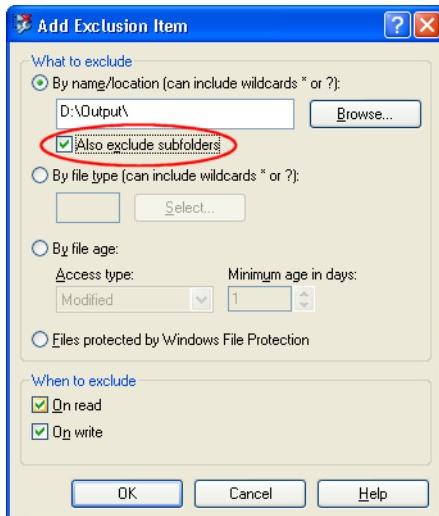


6. Click **Add**.



7. Click **Browse**.

8. In the Browse for Folder window, locate the **D:\Output** folder and click **OK**.



9. Select the **Also exclude subfolders** check box and click **OK**.
10. In the Set Exclusions dialog box, click **OK**.
11. In the VirusScan On-Access Scan Properties window, click **OK**.

You have completed configuring the VirusScan software.

## 1.5 Installing and Configuring Novell Client

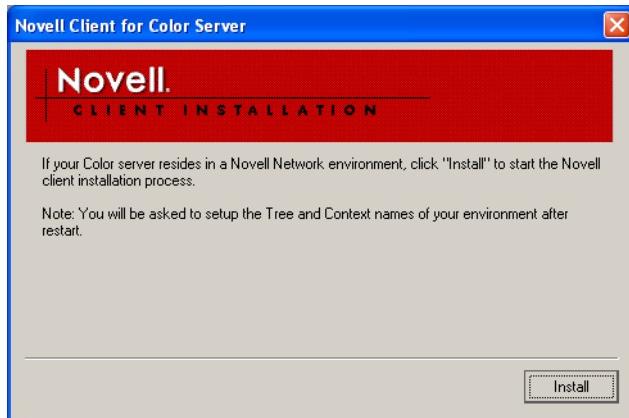
The following procedures are only relevant for customers who have a Novell network running IPX protocol. If you do not have this type of network, proceed to *Backing up the IC-304 Print Controller System* on page 25.

More information about configuring the connection between the IC-304 print controller and a Novell NDS server, in a Novell working environment, is provided in the IC-304 Print Controller User Guide.

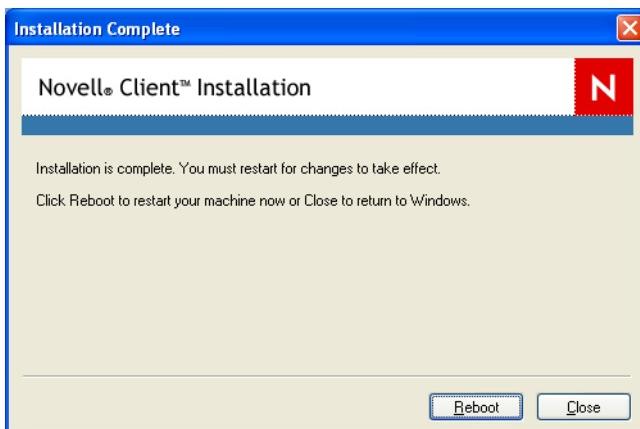
### Installing Novell Client for IC-304 Print Controller

1. Close the IC-304 print controller workspace and the IC-304 print controller software.
2. Close all other software programs.

3. From the Windows **Start** menu, select **IC-304PrintController > IC-304PrintController Tools > Novell Client Installation.**



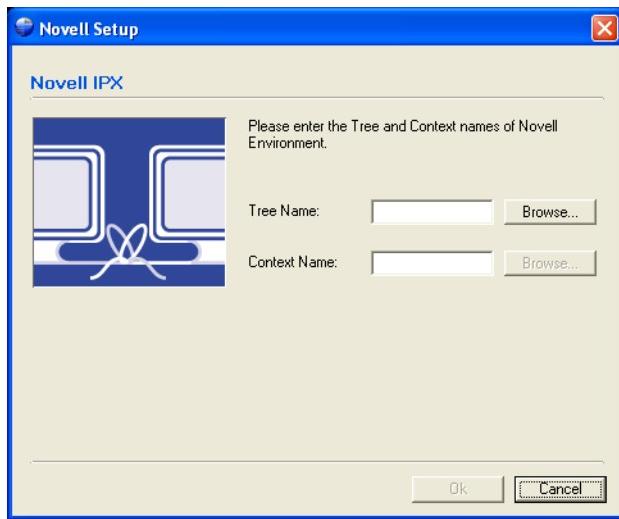
4. Click **Install**.



5. Click **Reboot**.
6. You have completed installing Novell Client™ software for the IC-304 print controller. Proceed to *Configuring Novell Client for IC-304 Print Controller*.

## Configuring Novell Client for IC-304 Print Controller

- After the server restarts, the Novell Setup dialog box appears.



- Type the **Tree Name**.
- If you do not know the name, click **Browse**.



- Double-click the appropriate **Tree Name**.

The Tree Name appears in the Novell Setup window.

- Type the **Context Name**.

6. If you do not know the name, click **Browse**.



7. Double-click the appropriate **Context Name**.

The Context Name appears in the Novell Setup window.

8. Click **OK**.

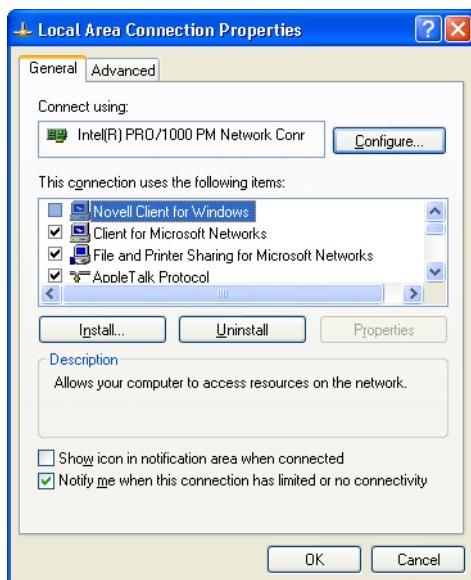
The IC-304 print controller work space appears.

9. You have completed installing and configuring Novell Client software.

## Uninstalling Novell Client for IC-304 Print Controller

Uninstall Novell Client software if you no longer operate a Novell network running IPX protocol.

1. Close the IC-304 print controller work space and the IC-304 print controller software.
2. Close all other software programs.
3. On the Windows desktop, right-click **My Network Places** and select **Properties**.  
The Network Properties window is displayed.
4. Right-click **Local Area Connection** and select **Properties**.



5. Make sure the **Novell Client for Windows** check box is selected, and then click the **Uninstall** button.

6. Click **Yes** twice.

The IC-304 print controller restarts.

You have completed uninstalling Novel Client software for the IC-304 print controller.

## 1.6 Performing a Test Print

### To import a file and perform a test print:

1. From the **File** menu select **Import**.
2. Locate one of the following files:
  - **CyclingTour\_Letter.pdf** in the **D:\Sample\_Files\USA\General** folder
  - **CyclingTour\_A4.pdf** in the **D:\Sample\_Files\Europe\General** folder
3. Double-click the file to add it to the list for importing.
4. Select the **ProcessPrint** virtual printer.
5. Click **Import**.

The file is processed, printed, and sent to the Storage window.

**Note:** If the job is not printed or is waiting in the **Print Queue**, check that the finishing device is set properly in the **Finishing** options of the Job Parameters window.

## 1.7 Backing up the IC-304 Print Controller System

A backup of the operating system should be performed after the system configuration is completed.

The IC-304 print controller enables you to back up only partition **C** or the entire system (partitions **C** and **D**).

You can back up a system partition at any time. When you back up a partition, Symantec Norton Ghost™ software copies the files on partition **C** to an image file on partition **D**. When you back up the entire system (partitions **C** and **D**), Norton Ghost software copies the files to a DVD.

When backing up the operating system, make sure that you have a sufficient amount of blank DVD-R media available.

**Tip:** It is recommended that you delete unnecessary files, such as temporary files, before performing the backup procedure.

**Note:** If you are already logged on to your system and the IC-304 print controller workspace is open, exit the workspace, insert DVD #1 into the DVD-RW drive, and proceed to step 4.

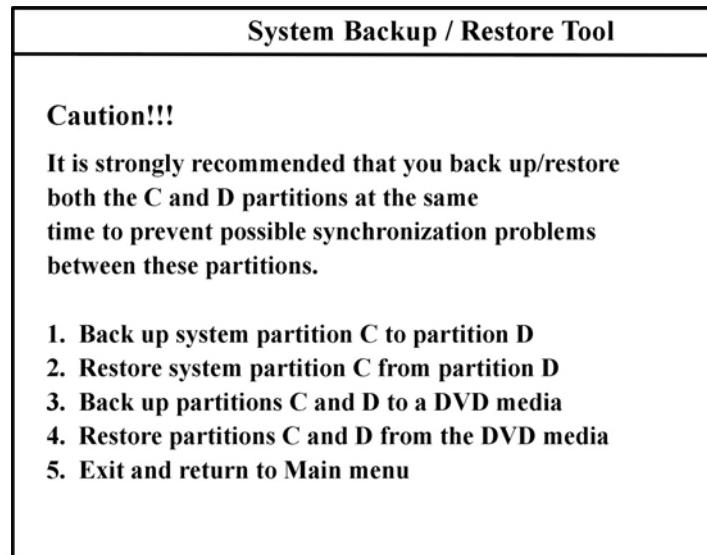
**To back up your system:**

1. Exit the IC-304 print controller work space.
2. Insert DVD #1 (Fast Install SLP) into the DVD-RW drive.
3. From the Windows **Start** menu, select **Shutdown > Restart > OK**.

After the system restarts, the IC-304 print controller Startup Menu appears. The following options are available:

1. ColorServer Software Complete Overwrite Installation
2. ColorServer Software Preservation Installation (System Partition Overwrite)
3. System Backup/Restore Tool
4. DOS prompt
5. Press **3** to use the **System Backup/Restore Tool**.
5. Press **Y** to confirm your selection.

The following message appears.



**Note:** If you want to copy the files to an external device, copy only the files located on **D:\Backup** that begin with **SYSPART**.

6. To back up partition **C**, press **1**. This option backs up the files on partition **C** to an image file on partition **D**.

The Norton Ghost window appears.

- a. If a Norton License Agreement window appears, click **OK** to continue.

The Norton Ghost software copies the files on partition **C** to an image file on partition **D**. The process takes about eight minutes to complete.

- b. When a message appears instructing you to remove the DVD from the DVD-RW drive and restart the computer, remove the DVD and press **CTRL+ALT+DELETE** to restart the computer.

- 
7. To back up the entire system (partitions **C** and **D**), press **3**. This option backs up partitions **C** and **D**. You may need more than one DVD for the backup.

- a. Press **Y** to continue.

Back up partitions C and D to a DVD media

Note that the backup procedure of the system disk may take time and may require many DVD+R or DVD+RW disks depending on the amount of data stored on the disk.  
In order to reduce the partition used space,

Number the DVD disks in the order they are created to facilitate easy restoration.

YN Continue?

- b. To continue, press **Y**.

Back up partitions C and D to a DVD media

Place a DVD media in  
the DVD drive.  
Wait until the LED on the  
DVD drive turns off.

- c. Follow the instructions in the message.

Norton Ghost software copies the files on partitions **C** and **D** to the DVD.

**Note:** If an error occurs during the backup process, a message appears asking you to contact customer support. Press any key to continue and the computer restarts automatically.

- d. When a confirmation message appears notifying you that the backup process was successfully completed, remove the DVD from the DVD-RW drive and press any key to continue.

The computer restarts automatically.

You have completed backing up the IC-304 print controller system.

## 1.8 Setting Up the Disk Wipe Utility

**Note:** The Disk Wipe utility runs automatically only after you shut down the IC-304 print controller.

The Disk Wipe utility is recommended for high security customers. Usually when you delete a file, the file's dictionary entry is removed but data still remains on the disk. The Disk Wipe utility enables you to clear previously deleted files. It eliminates the contents of your deleted files by scanning all of the empty sectors on the disk and replacing them with zeros or other characters. Sectors that are not empty are left untouched. This option enables you to work in a more secure environment.

**Note:**

The Disk Wipe utility does not function well with Symantec Norton Utilities™ technology installed on your computer. Therefore, before activating the IC-304 print controller Disk Wipe utility, ensure that Norton Utilities is not installed on the IC-304 print controller.

The Disk Wipe utility affects the user and printer disks.

Do not operate the Disk Wipe utility while another application is running.

In rare cases when the process of deleting files from the Storage window was interrupted, parts of the deleted files may still reside in the **D\:\Output** folder. Therefore, check the **D\:\Output** folder where you start Disk Wipe to ensure that all the relevant files were deleted.

Disk Wipe may take a while to complete. Make sure the completion message appears before you close or abort the software.

**To use the IC-304 Print Controller Disk Wipe utility:**

1. There are two methods for accessing the Disk Wipe utility:
  - a. Quit the IC-304 print controller software.  
On shutdown, the Disk Wipe window appears.
  - b. From the Windows **Start** menu, select **IC-304 > IC-304 Tools > DiskWipe**.



2. Click **Start Wiping**.  
A progress bar appears while Disk Wipe permanently deletes the files.
3. When the message Disk wiping was completed successfully appears, click **Exit**.

# 2

## Reinstalling the IC-304 Print Controller Software

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Reinstalling the System.....	38
Reinstalling the Software—Complete Overwrite .....	39
Reinstalling the Software—Preservation Installation.....	58

## 2.1 Overview

This chapter describes when and how to:

- Back up and restore the IC-304 print controller operating system, including the current job list database, on your computer
- Reinstall the software configuration on your IC-304 print controller

### 2.1.1 When to Back Up and Restore

Back up the IC-304 print controller system on a regular basis—for example, weekly—so that you always have a working copy of your software to be able to restore your system, if necessary.

**Tip:** Save a copy of the backup, either on the network or on an external device, to prevent loss of data in case your system disk becomes corrupted.

The IC-304 print controller provides two backup and restore methods:

- Back up and restore only partition **C**—Norton Ghost software copies the files on partition **C** to an image file on partition **D**, and restores partition **C** from the image file on partition **D**.
- Back up and restore partitions **C** and **D**—Norton Ghost software copies the files on partitions **C** and **D** to a DVD, and restores partitions **C** and **D** from the backup copy of the DVD.

You can perform the backup and restore procedure at any time.

Restore the software on your IC-304 print controller after an unrecoverable disk crash or when the system exhibits unpredictable behavior—for example, when error messages suddenly appear or the GUI freezes.

### 2.1.2 When to Reinstall

Reinstall when:

- A backup is not available or is corrupt
- You install a new operating system
- You physically replace or upgrade the system disk

In these cases, overwrite partitions **C** and **D**. This is the **Color Server Software Complete Overwrite Installation**.

You should also reinstall when:

- Windows XP operating system is corrupt

In this case, overwrite system partition **C**. This is the **Color Server Software Preservation Installation (System Partition Overwrite)**.

**Important:** We recommend that you always disconnect the network cable before installing software.

### 2.1.3 Pre-loaded Software

The IC-304 print controller is delivered to the customer site preloaded with the following software:

- Windows XP operating system with Microsoft Service Pack 2
- Nero
- Microsoft Internet Explorer 6
- IC-304 print controller software
- Adobe Acrobat 8.0
- Network parameters (host name, IP address, network services, and protocols)
- System backup

### 2.1.4 Disk Configuration

The following table outlines the IC-304 print controller disk configuration:

<b>Disk 0</b>	<b>C:</b> Windows XP operating system IC-304 print controller software	<b>D:</b> Spool files Shared files Output directory files Automatic Picture Replacement (APR) high-resolution files Backup folder
<b>Disk 1</b>	Image storage	
<b>Disk 2</b>	Image storage	

## 2.2 Backing Up and Restoring the Software

When you back up the IC-304 print controller system partition (partition **C**), all the operating system files are copied to partition **D**. See *Backing up the IC-304 Print Controller System* on page 25.

The backup and restore procedures do not require Windows XP operating system activation, and are not related to the system reinstallation.

**Attention:** Before performing the backup and restore procedures, make sure that your computer's configuration is the one that you want to use when restoring the system.

#### To back up and restore the software:

1. Back up the system partition **C**.

**Note:** For instructions, see *Backing up the IC-304 Print Controller System* on page 25.

2. Back up the job list database.

**Note:** For instructions, see *Backing Up the Job List Database* on page 33.

3. Move the backups to an external device or to a network.
4. Restore the system partition.

**Note:** For instructions, see *Restoring the IC-304 Print Controller System Partition* on page 34.

5. Restore the job list database.

**Note:** For instructions, see *Restoring the Job List Database* on page 37.

The following scenarios will help you to determine when to use the backup and restore procedures and when to use the reinstallation procedures.

Procedure	Use
Backup and restore	Always recommended except when the system must be reinstalled. See the following row.
Reinstallation	<b>Complete Overwrite</b> <ul style="list-style-type: none"><li>▪ Backup not available or is corrupt</li><li>▪ System disk replacement</li><li>▪ Upgrading the system disk</li></ul> <b>System Partition Overwrite</b> <ul style="list-style-type: none"><li>▪ Windows operating system is corrupt</li></ul>

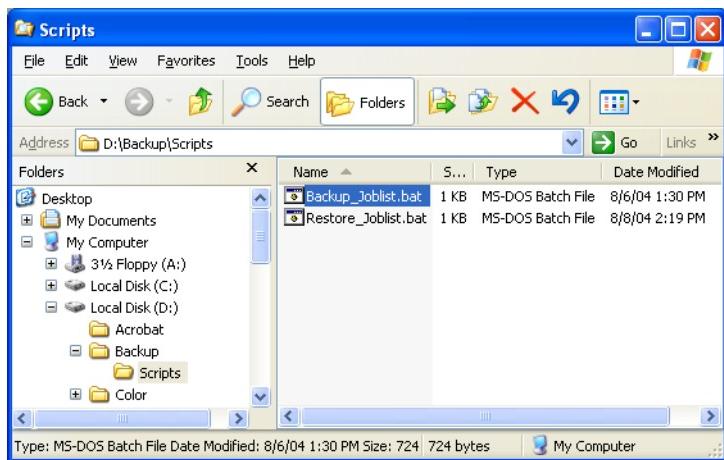
There are two reinstallation methods:

- **Color Server Software Complete Overwrite Installation**, which overwrites partitions **C** and **D**, should be performed only when installing a new operating system, when physically replacing the system disk or when upgrading the system disk.  
Partition **C** contains the operating system files. Partition **D** contains the color server software files (job list database and user files).
- **Color Server Software Preservation Installation (System Partition Overwrite)**, which overwrites partition **C**, should be performed when the Windows XP operating system operating system is corrupt and needs to be reinstalled.

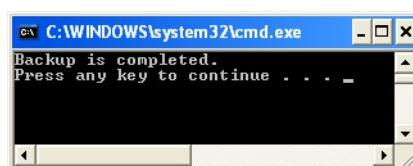
## 2.2.1 Backing Up the Job List Database

If you back up the IC-304 print controller software and configuration, your job list database is also backed up. If, at some later date, you restore the configuration, the original job list database will be restored, thus replacing your current job list database.

1. Exit the IC-304 print controller software.
2. On the Windows desktop, double-click **My Computer**, and locate the **D: > Backup > Scripts** folder.

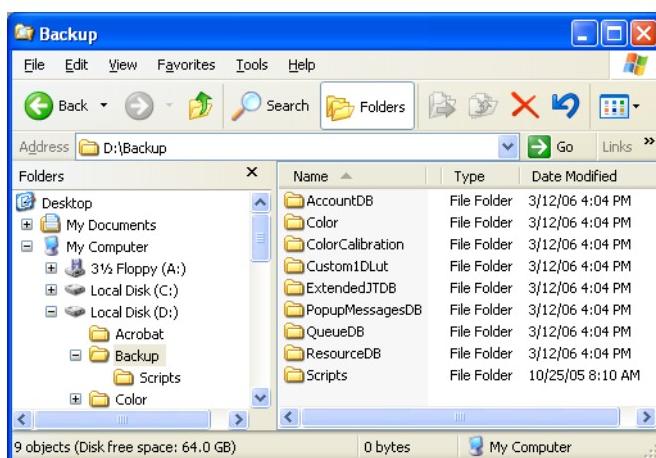


3. Double-click **Backup\_Joblist.bat**.
4. When the backup is complete, the following message appears:



5. Make sure that the folders created in **D:\Backup** have the latest modification date.

**Note:** The backup comprises a group of folders that are created the first time you back up the job list database.



6. Press any key to continue.

You have completed backing up the job list database.

## 2.2.2 Restoring the IC-304 Print Controller System Partition

**Note:** Before performing the restore procedure, if the job list database was not backed up or cannot be restored, you must format the image disks. See *Formatting the Image Disk* on page 87.

**Important:** We recommend that you always disconnect the network cable before installing software.

The IC-304 print controller enables you to restore partition **C** or the entire system (partitions **C** and **D**).

Performing the restore procedure requires a previous backup. Before restoring a partition, it is recommended that you back up any current important jobs, using the procedure described in *Backing Up the Job List Database* on page 33.

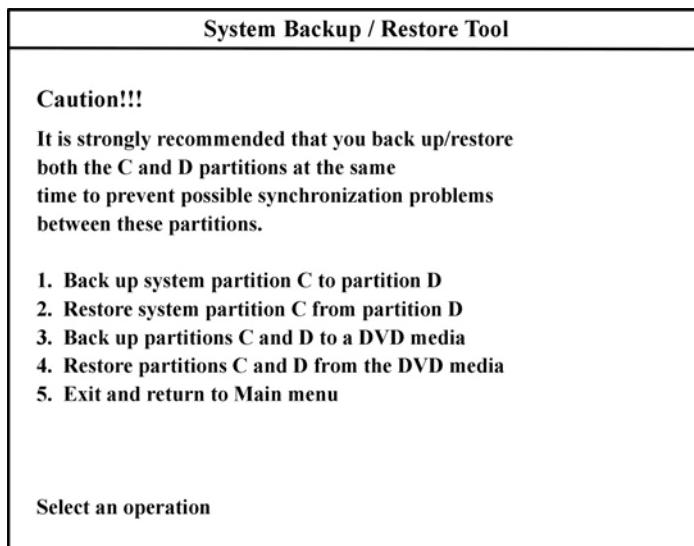
If you want to restore information from the image file on partition **D** back to partition **C**, the current job list will be replaced with the old job list that was saved while backing up partition **C**.

1. Exit the IC-304 print controller work space.
2. Insert DVD #1 (Windows XP operating system) into the DVD-RW drive.
3. From the Windows **Start** menu, select **Shut Down > Restart > OK**.

After the system restarts, the IC-304 print controller Startup Menu appears. The following options are available:

1. ColorServer Software Complete Overwrite Installation
  2. ColorServer Software Preservation Installation (System Partition Overwrite)
  3. System Backup/Restore Tool
  4. DOS prompt
4. Press **3** to use the **System Backup/Restore Tool**.

5. Press **Y** to confirm your selection.



**Note:** Before restoring the color server system partition, you may need to return the ghost file or files that you moved to an external device to **D:\Backup**.

6. To restore only partition **C**, press **2**. This option restores partition **C** from the image file on partition **D**.

The following message appears.

**WARNING:** The restore procedure erases all data on your system partition **C**.



The restore process is irreversible and overwrites all information on the system partition.

To save job and other resource information use the **Backup\_Joblist.bat** script.

Continue and restore system partition??

Yes/No

- If you click NO, the following message appears:

Please remove any DVD media from the drive and press **ctrl+alt+delete** to reboot the computer.

- Back up the job list database. See *Backing Up the Job List Database* on page 33.
- Return to step 3 and repeat the procedure.
- If you click **yes**, the Norton Ghost window appears and the image file on partition **D** is restored to partition **C**.

When the process is complete, the following message appears:

Please remove any DVD media from the drive and press **CTRL+ALT+DELETE** to reboot the computer.

- Remove the DVD from the DVD-RW drive and press **CTRL+ALT+DELETE** to restart.

7. To restore partitions **C** and **D**, press **4**. This option restores partitions **C** and **D** from a backup media.

- a. Press **Y** to continue.

Warning !!!

This process will erase  
all data on your system disk.

YN Are you sure

- b. Press **Y** to continue.

Restore partitions C and D from the DVD media

-----  
Place backup DVD disk 1  
in the DVD drive.

If multiple DVDs were created during  
the backup process, be sure to insert  
the disks in the order they were created.

Wait until the LED on the  
DVD drive turns off.

- c. Follow the instructions in the message.

- d. Press any key on your keyboard to continue.

Norton Ghost software copies the files on the DVD to partitions **C** and **D**.

**Note:** If an error occurs during the restore process, a message appears asking you to contact customer support. Press any key to continue. The computer restarts automatically.

- e. When a confirmation message appears notifying you that the restore process was successfully completed, remove the DVD from the DVD-RW drive and press any key to continue.

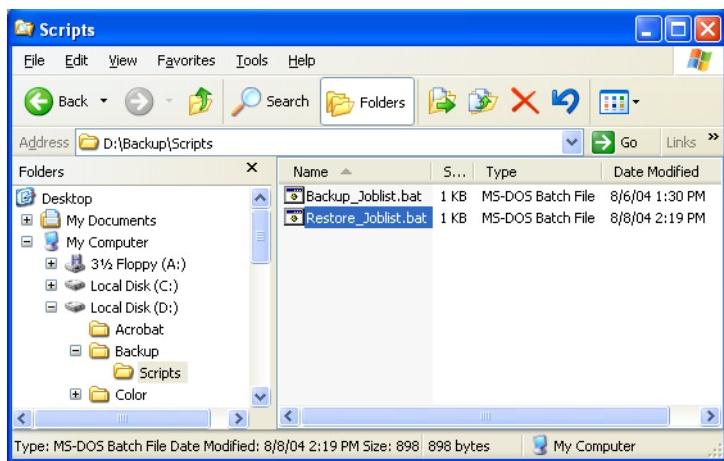
The computer restarts automatically.

You have completed restoring the IC-304 print controller system partition(s).

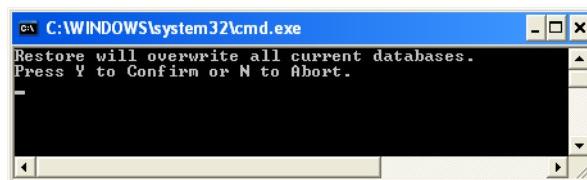
## 2.2.3 Restoring the Job List Database

When you restore the IC-304 print controller software and configuration that you previously backed up, you are replacing the current job list database with your original job list database.

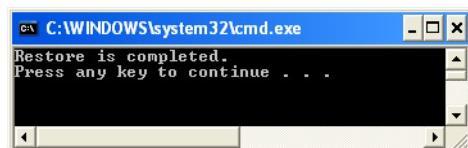
1. Exit the IC-304 print controller work space.
2. On the desktop, double-click **My Computer**, and locate the **D: > Backup > Scripts** folder.



3. Double-click **Restore\_Joblist.bat**.



4. Press **y** to continue.



5. Press any key to continue.

You have completed restoring the job list database.

## 2.3 Reinstalling the System

There are two methods by which you can reinstall the system:

- **Color Server Software Complete Overwrite Installation:**

This procedure replaces the entire system disk, operating system partition, IC-304 print controller software, and user partition (partitions **C** and **D**).

A complete overwrite should be performed when physically replacing the system hard disk

**Important:**

- We recommend that you always disconnect the network cable before installing software.

- This option deletes all the files stored on disks **C** and **D**. Make sure to back up any important customer files before selecting this option.

Back up the files to the local disk, and then back up the files to an external device or to a network (you cannot back up directly to an external device or network).

- **Color Server Software Preservation Installation (System Partition Overwrite):**

This procedure replaces only the operating system partition (**C**). You should perform System Partition Overwrite under the following conditions:

- When the Windows XP operating system operating system is corrupt and needs to be reinstalled
- When you are upgrading the operating system
- After an unrecoverable system crash

**Note:** After reinstalling the IC-304 print controller system partition (partition **C**), you can restore files that were backed up on partition **D**, such as the system configuration and activation string.

It may become necessary—for example, after an unrecoverable system crash—to reinstall the system at the customer's site.

The reinstallation is mostly unattended. User interaction is needed for entering the operating system license number and the computer host name, for restarting the computer when requested, for inserting the final DVD, and for the Configuration Wizard.

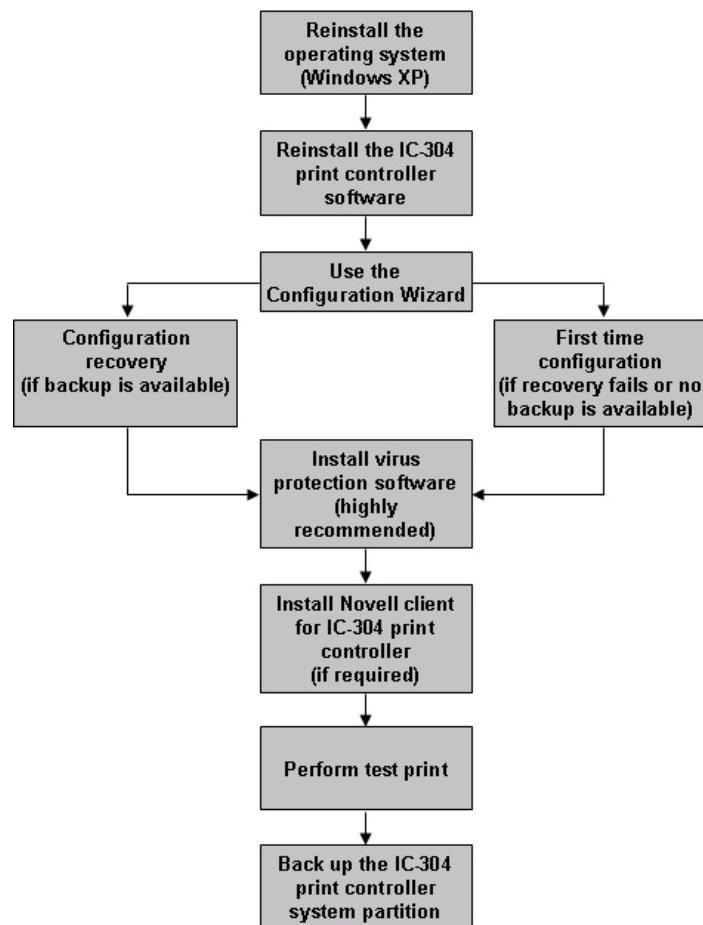
The reinstallation of the IC-304 print controller requires three discs:

- Disc 1 (DVD containing Windows XP operating system, labeled Fast Install)
- Disc 2 (DVD with application software containing the IC-304 print controller software)
- Disc 3 (CD containing Utilities and Documentation)

## 2.4 Reinstalling the Software—Complete Overwrite

**Note:** When possible, we recommend that you back up and restore the software. That is, in cases other than system crash or system disk replacement. For more information, see *Backing Up and Restoring the Software* on page 31.

The following workflow enables you to establish which procedure to perform and in what sequence.



## 2.4.1 Reinstalling the Operating System (Windows XP)

Before reinstalling, ensure that:

- All external devices are disconnected from the IC-304 print controller
- The following is available:

- Software pack (DVD #1, DVD #2)

**Note:** DVD #1, which includes the operating system, does not require entering a license number or activation.

- Computer name
  - TCP/IP information
  - Gateway, WINS address, and DNS information (if DHCP is not active on site)
  - AppleTalk zone information
  - IPX information

**Important:** We recommend that you always disconnect the network cable before installing software.

### Reinstalling the Windows XP Professional Operating System

1. If the IC-304 print controller is on and the IC-304 print controller workspace is open:

- a. Exit the workspace.
  - b. Place DVD #1 (Fast Install SLP) into the DVD-RW drive.

- c. From the Windows **Start** menu, select **Shut Down > Restart > OK**. Wait until the **Color Server Startup** menu appears and then proceed to step 2.

If your IC-304 print controller is off:

- a. Press the Power On/Off button on the front panel.
  - b. As soon as power is applied, place DVD #1 (Fast Install SLP), into the DVD-RW drive.
  - c. Wait until the **Color Server Startup** menu appears.

2. When the **Color Server Startup** menu appears, the following options are available:

- ColorServer Software Complete Overwrite Installation
- ColorServer Software Preservation Installation (System Partition Overwrite)
- System Backup/Restore Tool
- DOS prompt

3. Press **1**.

The confirmation message **Are you sure?** appears.

4. Press **y** (Yes) to confirm your selection.

**Note:** To return to the **ColorServer Startup** menu, click **N** (No).

All data on **C** and **D** will be overwritten.

5. The system starts copying the files. This process takes about eight minutes, and then the following message appears:

Please remove any media from the DVD-RW drive and press Ctrl+Alt+Del to reboot the computer.
  6. Remove DVD #1 from the DVD-RW drive, and press CTRL+ALT+DELETE to restart.
  7. In the Computer Name and Administrator Password screen, type the name for the IC-304 print controller—for example, IC304\_WinXP.
- Important:**  
In the **Administrator Name and Password** area, use the default settings. If required, you can change the administrator name and password, but only at the end of the installation process. See *Defining the Security Settings* on page 14.
8. Click **Next**.

The installation process continues.
  9. At the end of the installation the system restarts. You are asked to insert DVD #2 (application software).
  10. Proceed to *Reinstalling the Color Server Software*.

## 2.4.2 Reinstalling the Color Server Software

**Important:** We recommend that you always disconnect the network cable before installing software.

1. Insert DVD #2 into the DVD-RW drive.

The IC-304 print controller software splash screen appears.
2. Click **Start**.

The Acrobat software setup begins.

After the Acrobat software setup is complete, the IC-304 print controller installation starts.
3. When the License Agreement window opens, click **Yes** to continue the IC-304 print controller installation.
4. When the installation is complete:
  - a. Click **Finish** to restart the computer.
  - b. Remove DVD #2 from the DVD-RW drive.
  - c. Proceed to *Using the Configuration Wizard* on page 53.

### 2.4.3 Disk Striping

After the IC-304 print controller restarts, the Wrong Disk Configuration message may appear. This message indicates that the disks need to be striped.

#### Establishing the Correct Disk Striping Procedure

**Note:** If the Image Disks File System is not Formatted message appears, proceed to step 2 of the *Confirming the Disk Striping* procedure on page 53.

The Wrong Disk Configuration message appears when:

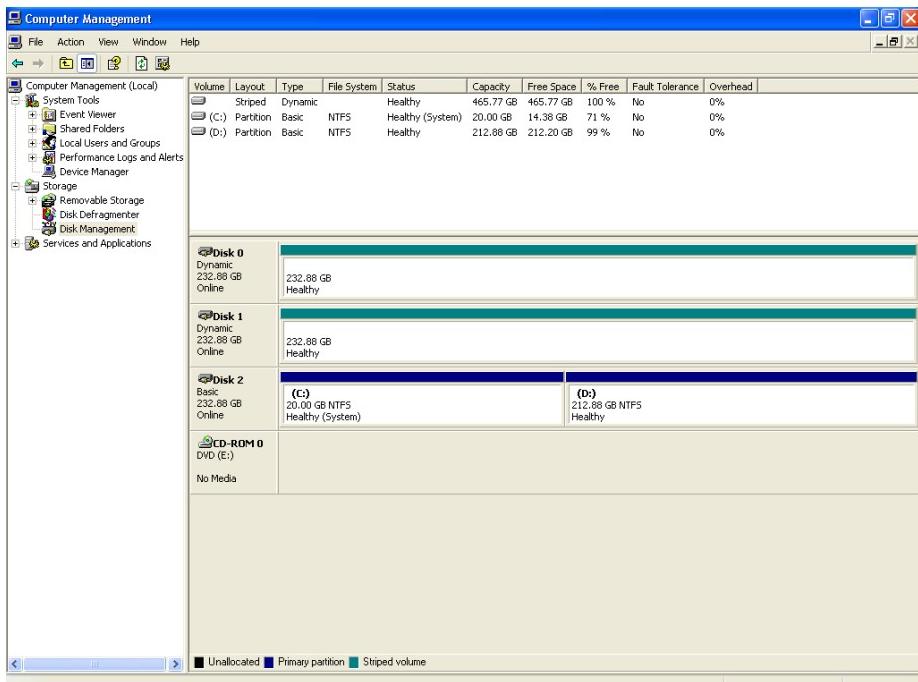
- The operating system does not identify a disk because a cable, such as a SATA2 or power cable, is faulty or not connected properly. See *Troubleshooting* on page 78.
- The operating system and the IC-304 print controller software have been installed from scratch, and the operating system only sees foreign disks. See *Striping Foreign Disks* on page 44.
- An image disk either has been replaced with a new disk or low-level formatted, and the operating system identifies it as an unknown disk. See *Striping Unknown Disks* on page 45.
- A faulty image disk has been replace with a new disk, and the operating system remembers that the disk that was replaced is missing. See *Removing a Missing Disk* on page 48.

**To establish the correct disk striping procedure:**

1. If the following message appears, click **OK**.



The Computer Management window appears.



2. Do one of the following actions:
  - Stripe the foreign disks— See *Striping Foreign Disks*.
  - Stripe the unknown disks—See *Striping Unknown Disks* on page 45.
  - Remove the missing disk—See *Removing a Missing Disk* on page 48.
3. After completing disk striping, the following message appears:

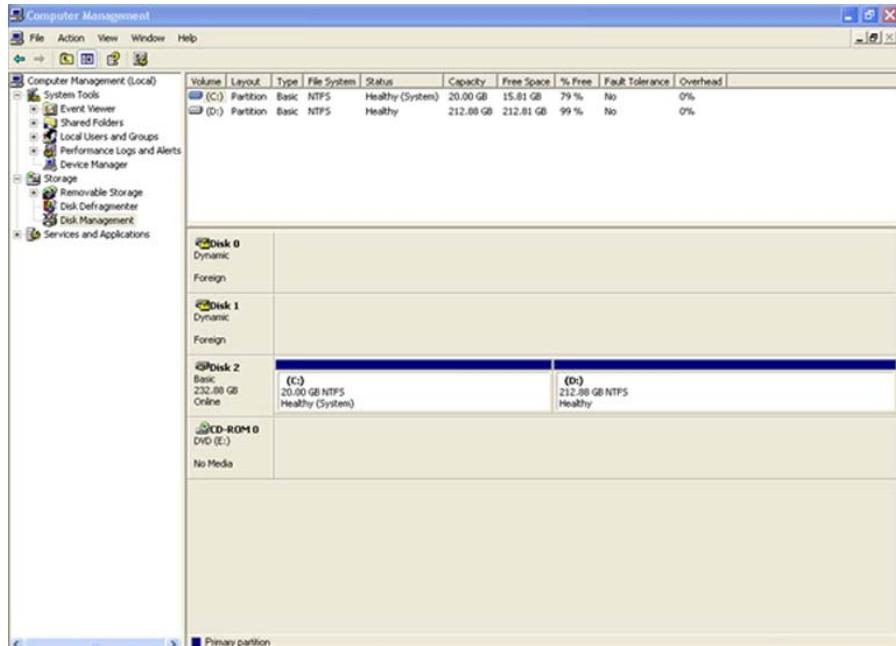


4. Click **OK**.

## Striping Foreign Disks

Perform the following procedure to remind the operating system that a striped volume resides within the operating system.

1. In the Computer Management window, verify that Disks 1 and 2 are labeled **Dynamic**.



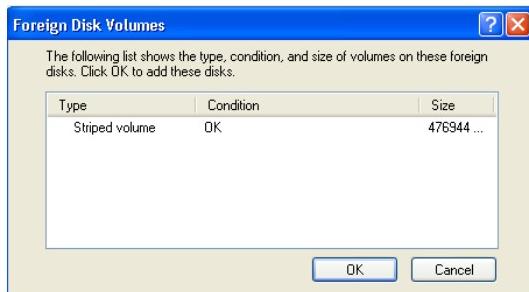
2. Right-click in the area where the disk is designated **Dynamic**, and select **Import Foreign Disks**.



**Note:** Foreign disks are any hard disks that were recognized as dynamic disks from a previous installation.

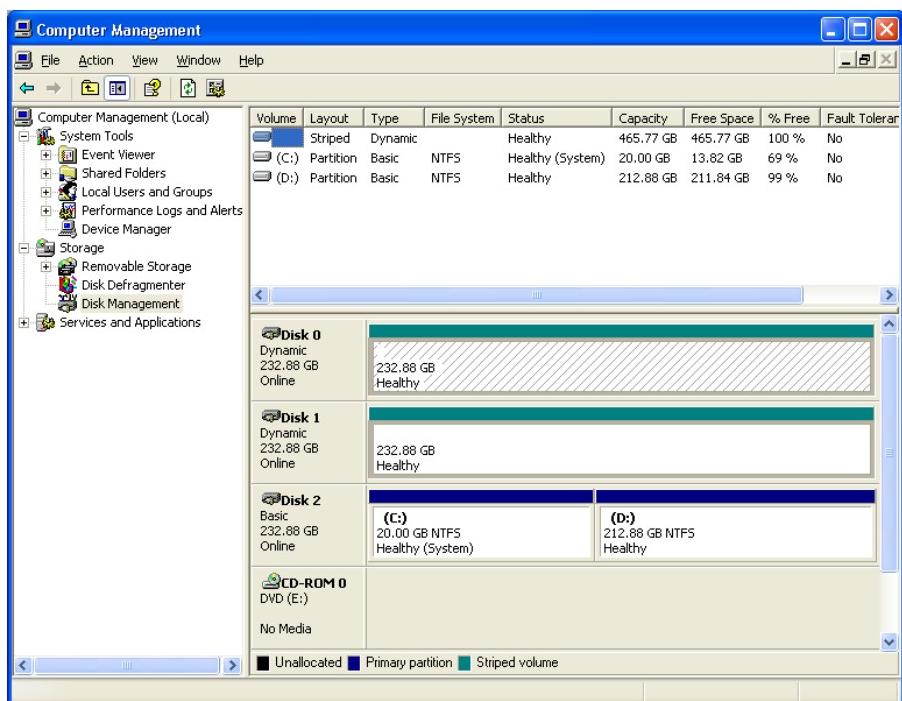


3. Verify that the **Foreign disk set (2 of 2 disks selected)** check box is selected and click **OK**.



4. Click **OK**.

The Dynamic disks are striped, as shown in the following window.



5. Close the Computer Management window.  
 6. When the **Image Disks File System is not Formatted** message appears, click **OK**.

## Striping Unknown Disks

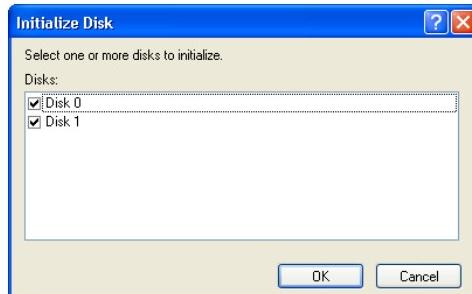
The following procedures describe how to initialize the unknown disks to basic disks and to convert the basic disks to dynamic disks.

Perform the following procedures if you have:

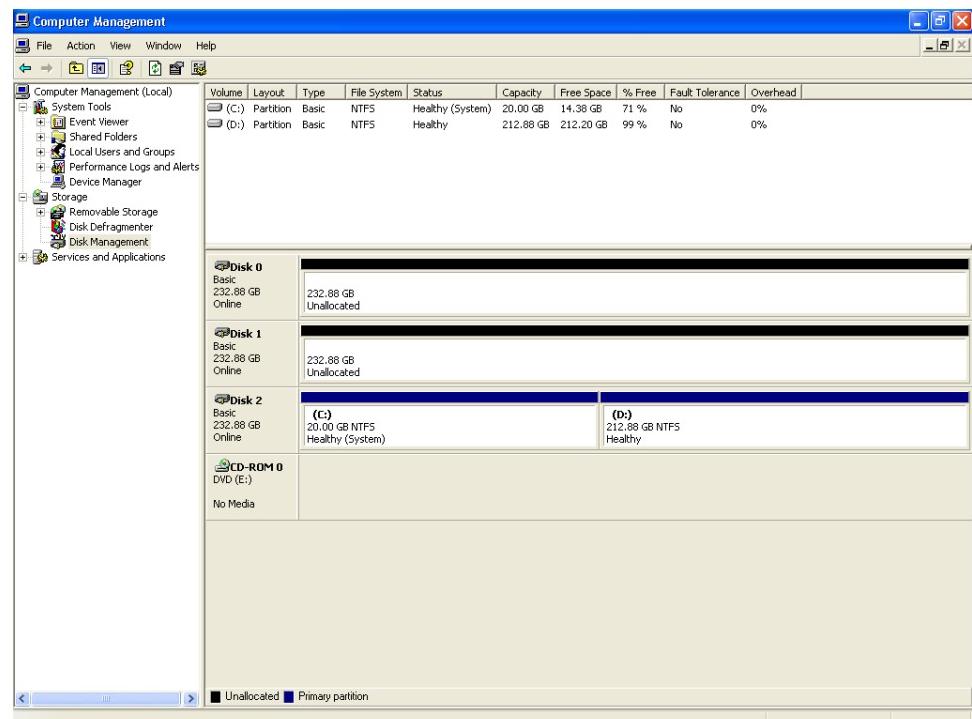
- Replaced an image disk
- Low-level formatted one or more image disks

### To initialize the disks:

1. In the Disk Management widow, right-click the **Disk 1** area, and select **Initialize Disk**.



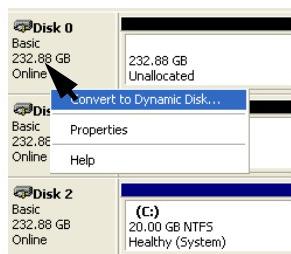
2. Verify that both image disk check boxes are selected, and click **OK**.
3. Verify that the Computer Management window appears similar to the following window.



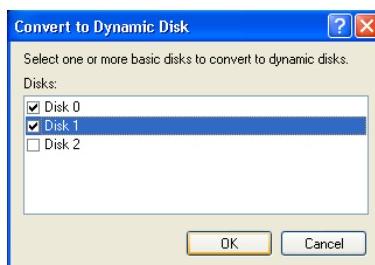
4. Proceed to *Converting the Disks to Dynamic Disks*.

### Converting the Disks to Dynamic Disks

1. In the Disk Management window, right-click in the **Disk 0** area.



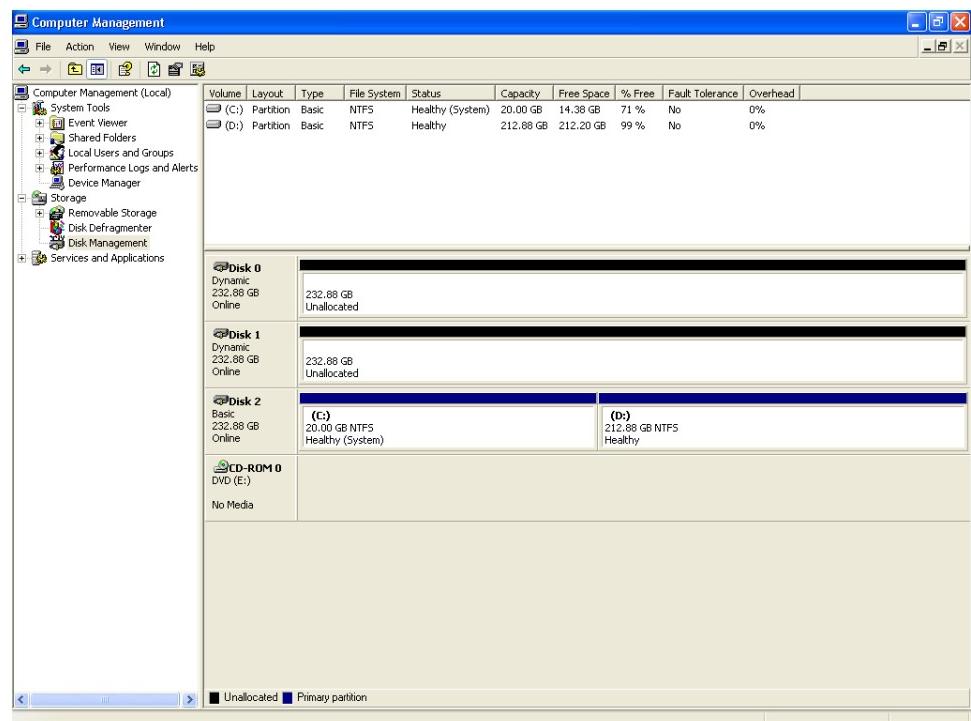
2. Select **Convert to Dynamic Disk**.



3. Select the **Disk 0** and **1** check boxes and click **OK**.

**Attention:** Do not select the **Disk 2** check box. **Disk 2** is the system disk and selecting the **Disk 2** check box will cause all information to be lost.

4. Verify that the Computer Management window appears similar to the following window.

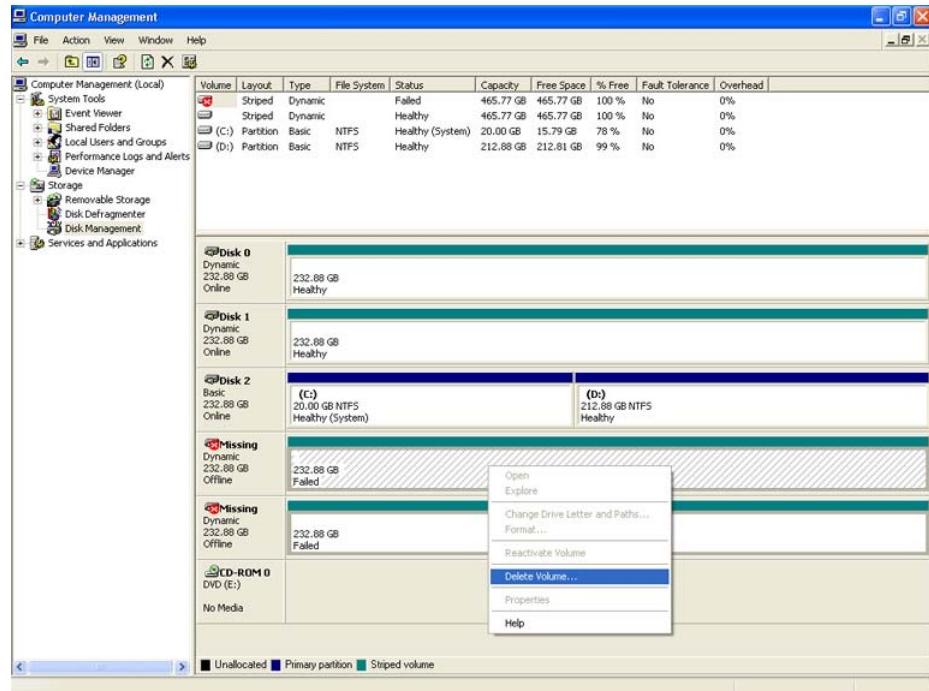


5. Create a striped volume. See *Creating a Striped Volume* on page 50.

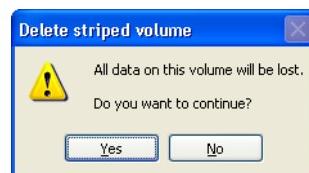
## Removing a Missing Disk

Perform the following procedure when you have replaced a faulty disk and the system remembers that the disk that was replaced is missing.

1. Right-click the white area opposite the missing disk.

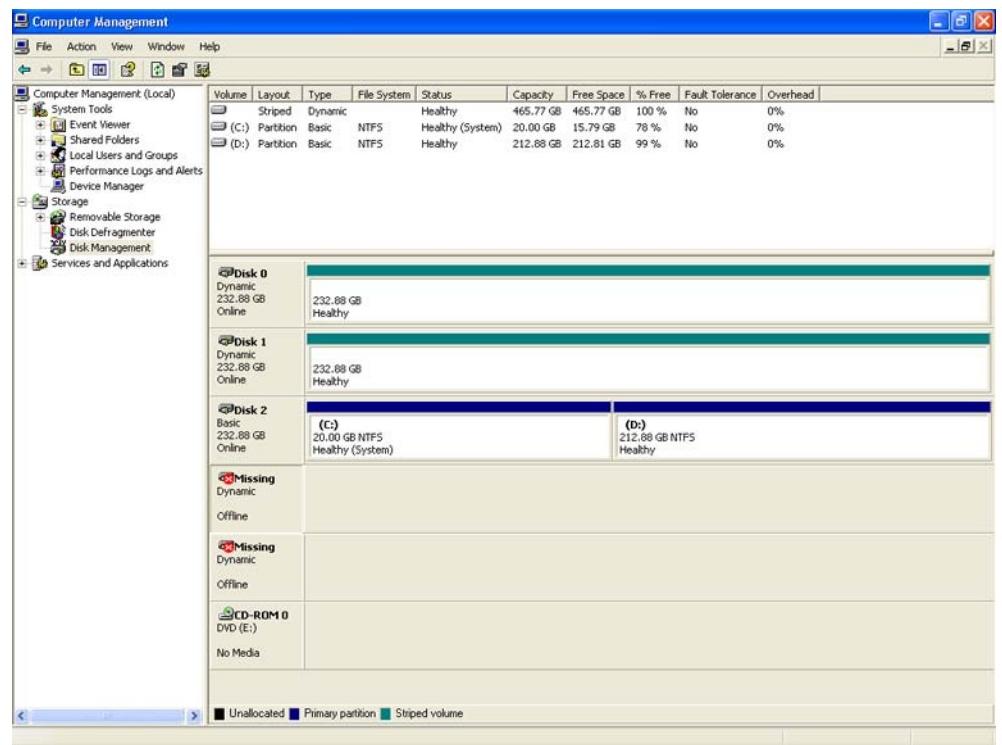


2. Select **Delete Volume...**.



3. Click **Yes**.

The missing disk volume is deleted, as shown in the following window:

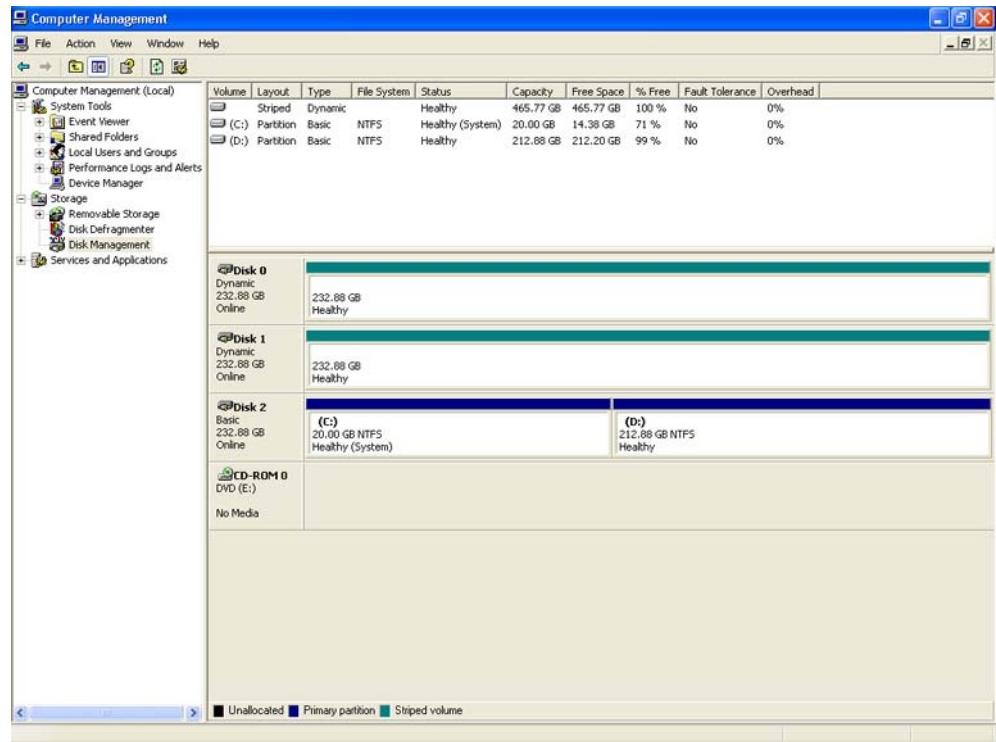


4. Right-click the **Missing Dynamic** area.



5. Select **Remove Disk**.

The missing disk is deleted, as shown in the following window:



6. Create a striped volume. See *Creating a Striped Volume*.

### Creating a Striped Volume

After you have replaced a disk, or low-level formatted one or more disks, you need to create a striped volume.

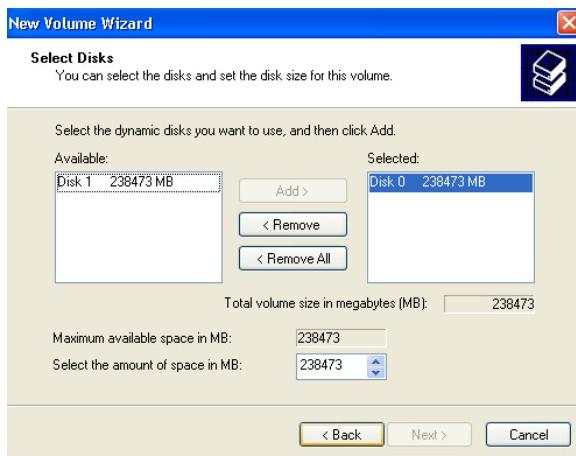
1. Right-click the white area to the right of the first disk, and select **New Volume**.



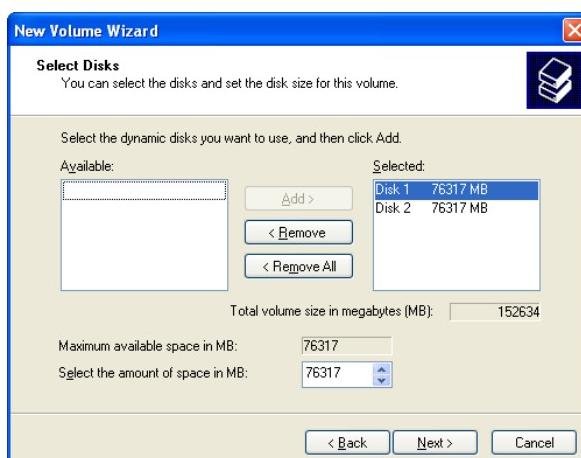
2. Click **Next**.



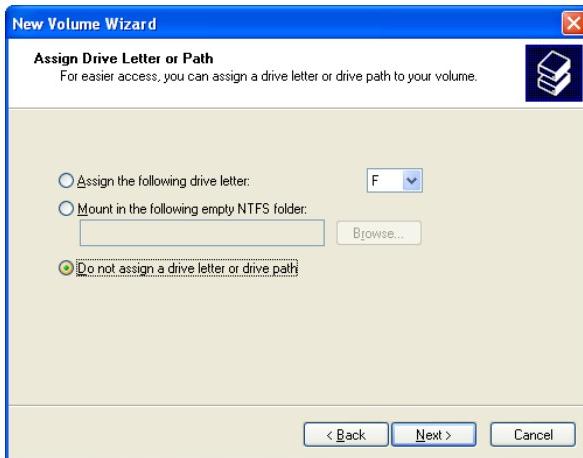
3. Select **Striped** and click **Next**.



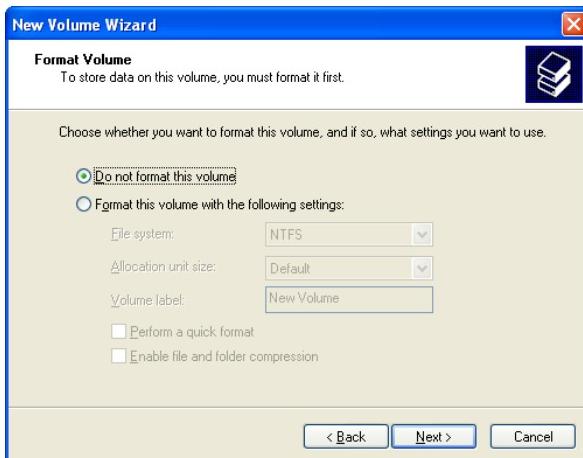
4. In the **Available** area, select each disk that you want to include in the new volume and click **Add**.



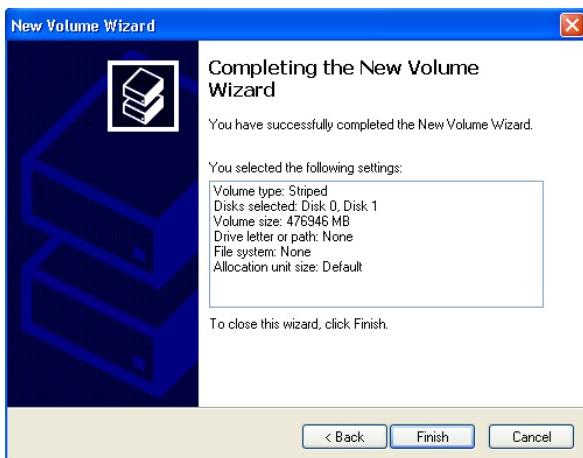
5. Click **Next**.



6. Select **Do not assign a drive letter or drive path** and click **Next**.



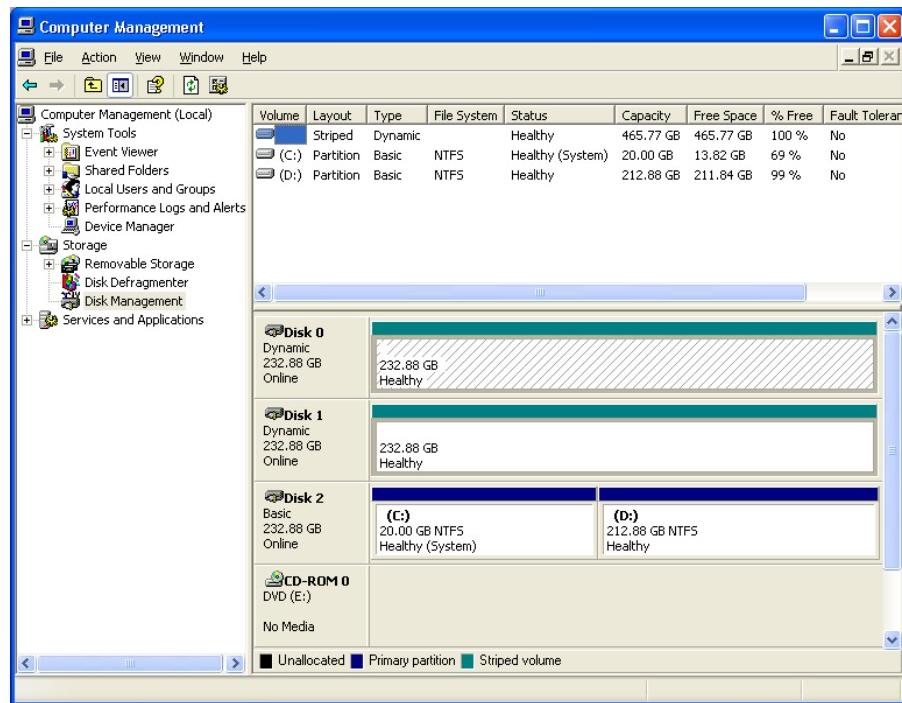
7. Select **Do not format this volume**, and click **Next**.



8. Click **Finish**.
9. Confirm that the disks are striped. See *Confirming the Disk Striping* on page 53.

## Confirming the Disk Striping

After you complete the New Volume Wizard, the Computer Management window appears:



1. Close the Computer Management window.
2. When the Image Disks File System is not Formatted message appears, click **OK**.

The Configuration Wizard appears.

**Note:** If a message appears requesting you to activate Windows XP operating system, ignore it until you have completed configuring the system. For more information, see *Backing Up the Color Server System Partition* on page 57.

- If configuration recovery information is available, proceed to *Restoring the Configuration* on page 54.
- If there is no backup and the system configuration must be done manually, proceed to *Configuring the IC-304 Print Controller for the First Time* on page 54.

### 2.4.4 Using the Configuration Wizard

The IC-304 print controller Configuration Wizard automatically appears when the installation is complete. It provides the following two options:

- First time configuration—when setting up the local system parameter's for the first time, and when no backup is available or recovery fails
- DFE Configuration recovery—when a backup of the system's configuration is available

Follow the steps in the wizard to complete the relevant configuration.

**Note:** During the configuring process, when prompted to restart your computer, click **No**.

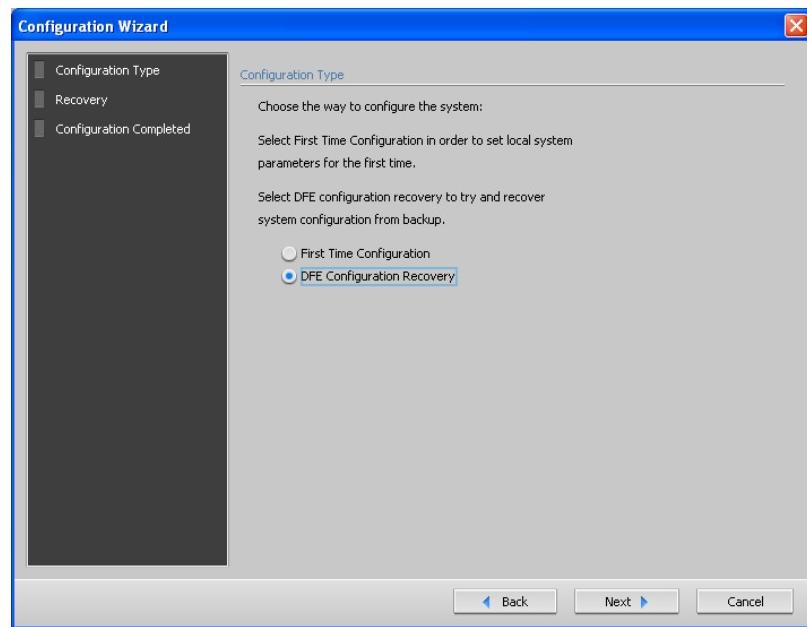
## Configuring the IC-304 Print Controller for the First Time

To configure the IC-304 print controller for the first time, see *Configuration Wizard (First-time Software Setup)* on page 5.

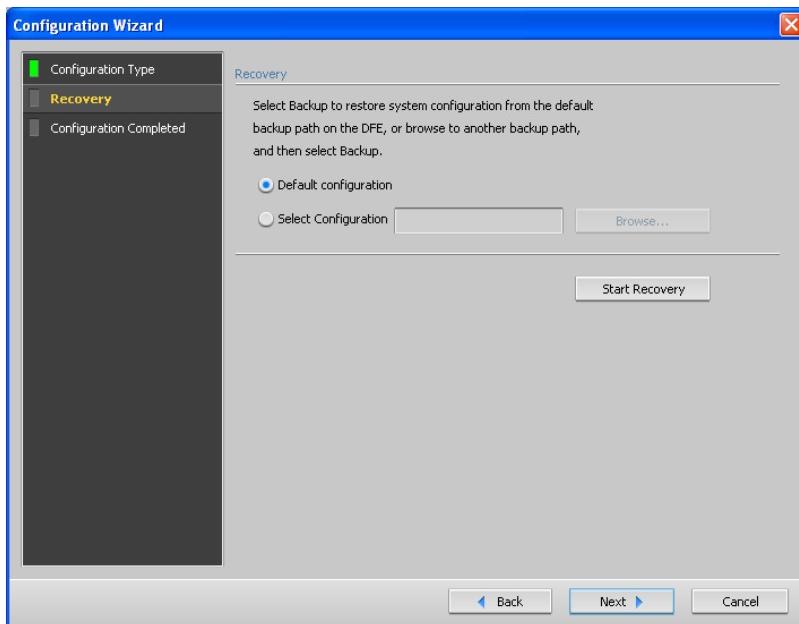
## Restoring the Configuration

If a backup is available, follow the steps in the wizard to complete the IC-304 print controller configuration recovery.

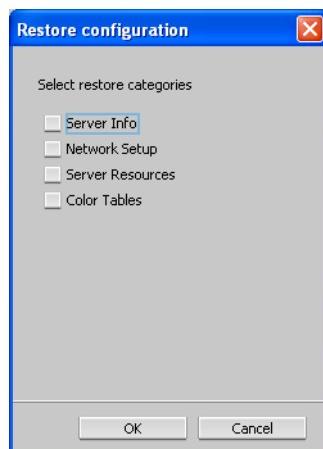
**Note:** During the configuring process, when prompted to restart your computer, click **No**.



1. Select **DFE Configuration recovery**, and click **Next**.



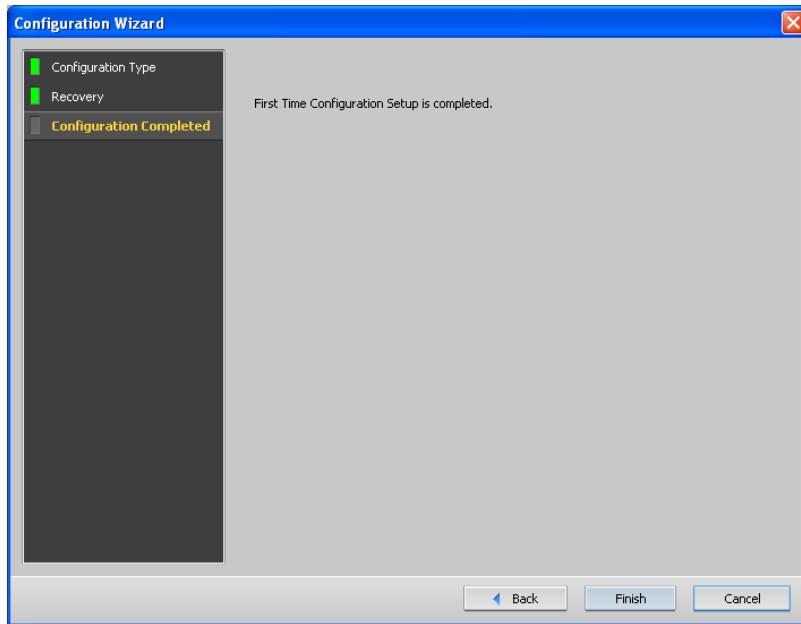
2. If you would like to restore the default configuration, select **Default Configuration**.
3. If you received the message Error in default configuration, or if you want to use a different configuration file than the default, choose **Select Configuration** and click **Browse**.
4. Locate the required configuration file, and then click **OK**.
5. Click the **Start Recovery** button.



6. Select the categories you want to restore, and click **OK**.

**Note:** When restoring the configuration all the custom tables/sets will be added to the system (for example, imported user-defined imposition templates, new published printers, and downloaded fonts).

7. In the Step 2 Recovery window, click **Next**.



8. Click **Finish**.

The IC-304 print controller workspace appears on your screen.

**Note:** For your changes to take effect, you must restart the server.

9. To make sure that changes take effect, close all open software and, from the Windows **Start** menu, select **Shutdown > Restart > OK**.

You have completed Restoring the Configuration if you want to change the administrator name and password, or only the user password, see *Defining the Security Settings* on page 14.

#### 2.4.5 Configuring the McAfee VirusScan

If you want to configure the McAfee VirusScan, see *Configuring McAfee VirusScan* on page 16.

#### 2.4.6 Installing and Configuring Novell Client for the IC-304 Print Controller

If you want to install and configure the Novell Client software for the IC-304 print controller, see *Installing and Configuring Novell Client* on page 21.

#### 2.4.7 Performing a Test Print

To perform a test print, see *Performing a Test Print* on page 25.

## 2.4.8 Backing Up the Color Server System Partition

To back up the ColorServer system partition, see *Backing up the IC-304 Print Controller System* on page 25.

## 2.5 Reinstalling the Software—Preservation Installation

**Note:** To enable the restoration of customer settings and job data, we recommend that you back up the IC-304 print controller configuration and other information before loading the operating system, see *Backing Up the Color Server System Partition* on page 57 and *Backing Up the Job List Database* on page 33.

**Important:** We recommend that you always disconnect the network cable before installing software.

The Software Preservation Installation mirrors the Software Complete Overwrite Installation (including Windows XP operating system activation), but does not affect the files stored on partition **D**. Use the Software Preservation Installation option if a backup of partition **C** is not available, or when you want to reinstall the operating system. This enables you to install a fresh operating system on partition **C** without deleting the user files on partition **D**. It will not preserve the current job list on partition **C**. For this you must use the backup and restore option (see *Backing Up and Restoring the Software* on page 31).

To reinstall the Software Preservation Installation, follow the flowchart described in *Reinstalling the Software—Complete Overwrite* on page 39. Make sure that DVD #1 is in the DVD-RW drive; then from the **ColorServer Start Up** menu, select the **ColorServer Software Preservation Installation (System Partition Overwrite)** option.

**Note:** When performing the software preservation installation, after restarting Windows XP operating system, the system performs the following actions:

- The Norton Ghost software appears and copies the files.
- The message **Image Disks FileSystem is Not formatted.** Press **OK** to format. appears. Click **OK**. The system automatically stripes the disk, and then the Configuration Wizard appears.

You have completed Reinstalling the IC-304 print controller software.

# 3

## Diagnostics and Troubleshooting

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## 3.1 Platform Diagnostics and Configuring the Server

This section provides basic troubleshooting information to help you resolve some issues that might possibly occur with the IC-304 print controller.

To maintain the good health of the server, it is important that the server continuously remains correctly configured. An incorrectly configured server will deliver poor performance, and the diagnostic results will be adversely effected.

### 3.1.1 Configuring Tools Overview

The following configuration programs are also provided to assist you in configuring the server, and to provide diagnostic information:

- BIOS Setup Utility
- Gigabit Ethernet Controller
- LAN speed verification

#### **Phoenix cME FirstBIOS Pro**

This program controls the basic input/output system (BIOS) code in your server. Use BIOS setup utility to:

- View configuration information.
- View and change assignments for devices and I/O ports.
- Set the date and time.
- Set the startup characteristics of the server and the order of startup devices.
- Set and change settings for advanced hardware features.
- View and clear error logs.
- Resolve configuration conflicts.

#### **Gigabit Ethernet Controller**

The Ethernet controller is integrated on the system board.

- It provides a interface for connecting to a 10-Mbps, 100-Mbps, or 1000-Mbps network and provides full duplex (FDX) capability, which enables simultaneous transmission and reception of data on the network.
- If the Ethernet port in the server supports auto-negotiation, the controller detects the data-transfer rate of the network (10BASE-T, 100BASE-TX, or 1000BASE-T) and automatically operates at that rate, in full-duplex or half-duplex mode, as appropriate.
- The Ethernet controller supports optional modes, such as teaming, priority packets, load balancing, fault tolerance, and virtual LANs, which provide better performance, security, and throughput. These modes apply to the integrated Ethernet controller and to controllers on supported Ethernet adapters.

## Troubleshooting the Ethernet Controller

This section provides troubleshooting information for problems that might occur with the 10/100/1000-Mbps Ethernet controller.

### To resolve network connection problems:

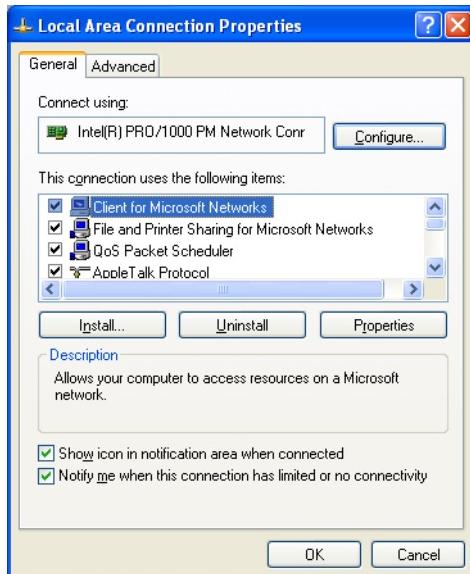
If the Ethernet controller cannot connect to the network, perform the following:

- Check the BIOS configuration relating to the LAN.
- Verify that the cable from the LAN connector on the server is connected to the LAN.
- Check that the network cable is attached at all connections. If the cable is attached but the problem persists, try a different cable.
- Check the LAN activity light on the rear of the IC-304 print controller. The LAN activity light illuminates when the Ethernet controller sends or receives data over the Ethernet network. If the LAN activity light is off, ensure that the hub and network are operating and that the correct device drivers are loaded.

## Verifying the LAN Speed

Use the following procedure to make sure that your system is operating at the maximum speed of the network.

1. Right-click **My Network Places**, and select **Properties**.  
The Network Connection window appears.
2. Right-click **Local Area Connection**, and select **Properties**.



3. Select the **Show icon in taskbar when connected** check box and click **OK**.

4. Roll the cursor over the network icon in the taskbar to display the speed, as shown in the following example:



### 3.1.2 Using the Configuring Tools

#### Using the Phoenix cME FirstBIOS Pro Setup Utility

This section provides instructions for starting the Phoenix cME FirstBIOS Pro Setup Utility and descriptions of the menu choices available for configuring the BIOS.

**Important:** It is recommended that you do not alter any BIOS settings unless they do not follow the recommendations in this section. Faulty BIOS settings could cause the system to fail or to operate incorrectly.

#### Starting the Phoenix cME FirstBIOS Pro Setup Utility

1. Quit the color server software.
2. Restart the IC-304 print controller and immediately press DELETE.

The Phoenix cME FirstBIOS Pro Setup Utility window appears.

#### Selecting From the Phoenix cME FirstBIOS Pro Setup Utility Main Menu

You can select settings that you want to change from the BIOS Setup Utility Main menu.

The Phoenix cME FirstBIOS Pro Setup Utility Main menu is similar to the following:

Phoenix cME FirstBIOS Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
<b>System Time:</b> [09:35:26]				
<b>System Date:</b> [05/26/2008]				
<b>Legacy Diskette A:</b> [Disabled]				
<b>BIOS Date</b> 05/07/2008				
<b>Hard Disk Pre-Delay:</b> 3 seconds				
<b>Serial ATA:</b> [Enabled]				
<b>Native Mode Operation:</b> [Auto]				
<b>SATA RAID Enable</b> [Disabled]				
<b>SATA AHCI Enable</b> [Disabled]				
▶ <b>SATA Port 0</b> [CD-ROM]				
▶ <b>SATA Port 1</b> [250GB SATA2]				
▶ <b>SATA Port 2</b> [None]				
▶ <b>SATA Port 3</b> [None]				
▶ <b>SATA Port 4</b> [250GB SATA5]				
▶ <b>SATA Port 5</b> [250GB SATA6]				
<b>F1 Help</b> <b>↑↓ Select Item</b>	<b>-/+ Change Values</b>		<b>F9 Setup Defaults</b>	
<b>Esc Exit</b> <b>↔ Select Menu</b>	<b>Enter Select ▶ Sub-Menu</b>		<b>F10 Save and Exit</b>	

**Note:** The choices on some menus might differ slightly from the ones that are described in this manual. The menu choices depend on the BIOS version in the server.

Descriptions of the choices that are available from the main menu are as follows:

- **System Time:** Sets the system date and time. The system time is in a 24-hour format (hour:minute:second).
- **System Date:** Sets the system date. The system date is in the format (month/day/year).
- **Hard Disk Pre-Delay:** Adds a delay before the HDD is accessed by the BIOS for the first time.
- **Serial ATA:** Allows the user to enable or disable the function of Serial ATA.

## Selecting From the Phoenix cME FirstBIOS Pro Setup Utility Advanced Menu

Boot Features—Select this submenu to change the following settings:

**Quick Boot Mode:**

If enabled, this feature will speed up the POST (power-on self test) routine after the computer is turned on. If disabled, the POST routine will run at normal speed.

**Quiet Boot:**

Select this option to enable or disable the diagnostic screen during startup.

▪ **Advanced Processor Options:**

Select this submenu to change the following settings.

**CPU Speed:**

This display indicates the speed of the processor.

**Machine Checking:**

If enabled, this feature allows the CPU to detect and report hardware (machine) errors.

**Compatible FPU Code:**

This feature is for debugging only.

**Adjacent Cache Line Prefetch:**

If enabled, the CPU fetches both cache lines for 128 bytes.

**Set Max Ext CPUID = 3**

**Echo TPR:**

This feature is for debugging only.

**C1 Enhanced Mode:**

If enabled, this feature lowers the CPU voltage and frequency to prevent overheating.

**Intel Virtualization Technology:**

If enabled, this feature utilizes enhanced virtualization capabilities to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple virtual systems in one physical computer.

Disabled is the default setting. If you change this setting, you must restart your computer for the change to take effect.

**No Execute Mode Memory Protection:**

If enabled, this feature allows the processor to classify areas in the memory where an application code can execute and where it cannot.

**Enhanced Intel Speed Step:**

This setting allows you to determine the processor power management mode.

▪ **I/O Device Configuration:**

Select this submenu to change the following settings:

**KBC Clock Input:** This setting allows you to set the keyboard clock rate.

**Serial Port A:** This setting allows you to assign control of serial port A.

**Serial Port B:** This setting allows you to assign control of serial port B.

- Floppy Disk Controller:** This setting allows you to assign control of the floppy disk controller.
- **Hardware Monitor:**  
Select this submenu to change the following settings:
  - CPU Temperature Threshold:** This option allows you to set a CPU temperature threshold that will activate the alarm system when the CPU temperature reaches the predefined temperature threshold.
  - Fan Speed Control Modes:** This option allows you to decide how the system controls the speed of the on-board fans.
  - Voltage Monitoring**
  - System Event Log**
  - Real Time Sensor Data**

## Selecting From the Phoenix cME FirstBIOS Pro Setup Utility Boot Menu

### ▪ **Boot Priority Order and Exclusions From Boot Order**

For details on how to change the order and specifications of the boot order, see the Item Specific Help area.

## Selecting From the Phoenix cME FirstBIOS Pro Setup Utility Exit Menu

- **Exit Saving Changes:** This option allows you to save any changes that you made and to exit the BIOS setup utility Setup Utility.
- **Exit Discarding Changes:** This option allows you to exit the BIOS setup utility Setup Utility without saving any changes that you may have made.
- **Load Setup Defaults:** This option allows you to load the default settings for all items in the BIOS setup. This is the safest setting to use.
- **Discard Changes:** This option allows you to discard (cancel) any changes that you made. You will remain in the BIOS setup utility Setup Utility.
- **Save Changes:** This option allows you to save any changes that you made. You will remain in the BIOS setup utility Setup Utility.

## Configuring the Computer BIOS

1. Start the Phoenix cME FirstBIOS Pro Setup Utility. See *Starting the Phoenix cME FirstBIOS Pro Setup Utility* on page 62

The Phoenix cME FirstBIOS Pro Setup Utility window appears.

**Tip:** To modify any of the following values, use the arrow keys to move to the required values, and the +, -, and numbered keys to change the values.

2. If required, change the **System Time** and **System Date** and verify that the rest of the settings are the same as the settings in the following window.
- a. Press ENTER to save any changes.

Phoenix cME FirstBIOS Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
<b>System Time:</b>	[09:35:26]			
<b>System Date:</b>	[05/26/2008]			
<b>Legacy Diskette A:</b>	[Disabled]			
<b>BIOS Date</b>	05/07/2008			
<b>Hard Disk Pre-Delay:</b>	3 seconds			
<b>Serial ATA:</b>	[Enabled]			
<b>Native Mode Operation:</b>	[Auto]			
SATA RAID Enable	[Disabled]			
SATA AHCI Enable	[Disabled]			
▶ SATA Port 0	[CD-ROM]			
▶ SATA Port 1	[250GB SATA2]			
▶ SATA Port 2	[None]			
▶ SATA Port 3	[None]			
▶ SATA Port 4	[250GB SATA5]			
▶ SATA Port 5	[250GB SATA6]			
<b>Item Specific Help</b>				
<Tab>, <Shift-Tab>, or <Enter> selects field.				
<b>F1</b> Help	↑↓ Select Item	-/+ Change Values	<b>F9</b> Setup Defaults	
<b>Esc</b> Exit	↔ Select Menu	<b>Enter</b> Select ▶ Sub-Menu	<b>F10</b> Save and Exit	

3. Using the arrow keys, select the **Advanced** menu.

Phoenix cME FirstBIOS Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
▷ Boot Features				
▶ Advanced Processor Options				
▶ Advanced Chipset Control				
▶ Memory Cache				
▶ PnP Configuration				
▶ I/O Device Configuration				
▶ DMI Event Logging				
▶ Console Redirection				
▶ Hardware Monitor				
<b>Item Specific Help</b>				
Select Boot features				
<b>F1</b> Help	↑↓ Select Item	-/+ Change Values	<b>F9</b> Setup Defaults	
<b>Esc</b> Exit	↔ Select Menu	<b>Enter</b> Select ▶ Sub-Menu	<b>F10</b> Save and Exit	

4. Using the keyboard arrow keys, select **Boot Features** and press ENTER.

5. Verify that the settings are the same as the settings in the following window.

Phoenix cME FirstBIOS Pro Setup Utility		
Advanced		
Boot Features		Item Specific Help
Quiet Boot	[Disabled]	Display the graphic screen during booting
QuickBoot Mode:	[Enabled]	
ACPI Mode:	[Yes]	
Power Button Behavior:	[Instant-Off]	
Resume On Modem Ring:	[Off]	
Resume on PME#	[On]	
PS2 KB/MS Wake Up	[Disabled]	
USB Wake Up	[Disabled]	
Power Loss Control:	[Last State]	
Watch Dog:	[Disabled]	
Summary screen:	[Enabled]	
<b>F1</b> Help <b>↑↓</b> Select Item <b>←→</b> Select Menu		<b>F9</b> Setup Defaults
<b>Esc</b> Exit <b>Enter</b> Change Values    Select ▶ Sub-Menu		<b>F10</b> Save and Exit

6. Press ESC to return to the **Advanced** menu.  
 7. Using the arrow keys, select **Advanced Processor Options** and press ENTER.  
 8. Verify that the settings are the same as the settings in the following window:

Phoenix cME FirstBIOS Pro Setup Utility		
Advanced		
Advanced Processor Options		Item Specific Help
CPU Speed	3.00 GHz	Determines whether the 2nd core is enabled.
Core Multi-Processing:	[Enabled]	Disabled = 2nd core is disabled.
Machine Checking	[Enabled]	Enabled = 2nd core is enabled.
Compatible FPU Code	[Disabled]	
Adjacent Cache Line Prefetch	[Enabled]	
Set Max Ext CPUID = 3	[Disabled]	
Echo TPR	[Enabled]	
C1 Enhanced Mode	[Disabled]	
Intel (R) Virtualization Technolog	[Disabled]	
No Execute Mode Mem Protection	[Enabled]	
Enhanced Intel Speed Step	[GV1/GV3 Onl]	
<b>F1</b> Help <b>↑↓</b> Select Item <b>←→</b> Select Menu		<b>F9</b> Setup Defaults
<b>Esc</b> Exit <b>Enter</b> Change Values    Select ▶ Sub-Menu		<b>F10</b> Save and Exit

9. Press ESC to return to the **Advanced** menu.  
 10. Using the arrow keys, select **I/O Device Configuration** and press ENTER.

11. Verify that the settings are the same as the settings in the following window.

Phoenix cME FirstBIOS Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
I/O Device Configuration			Item Specific Help	
KBC Clock Input: [12MHz] Serial port A: [Enabled] Base I/O address: [3F8] Interrupt: [IRQ 4] Serial port B: [Disabled] Floppy disk controller: [Enabled]			Select clock frequency of KBC.	
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults	
Esc Exit	↔ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit	

12. Press ESC to return to the **Advanced** menu.  
 13. Using the arrow keys, select **Hardware Monitor** and press ENTER.  
 14. Verify that the settings are the same as the settings shown in the window in following window.

Phoenix cME FirstBIOS Pro Setup Utility				
Advanced				
Hardware Monitor			Item Specific Help	
CPU Temperature: 27°C System Temperature: 32°C  CPU Fan = 3383 RPM FAN1 = N/A FAN2 = 2468 RPM FAN3 = N/A FAN4 = 2772 RPM FAN5 = 2872 RPM Fan Speed Control Modes: [4-pin(Server)]			1) Full speed at 12V 2) Optimized Server with 3-pin 3) Optimized Workstation with 3-pin 4) Optimized Server with 4-pin 5) Optimized Workstation with 4-pin	
VcoreA :	1.188 V	P_VTT :	1.248 V	
-12V :	-12.214 V	V_DIMM :	1.808 V	
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults	
Esc Exit	↔ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit	

15. Press ESC twice to return to the BIOS setup utility Setup Utility main window.

16. Select the **Boot** menu and verify that the settings are the same as shown in the following window:

Phoenix cME TrustedCore Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
<b>Boot priority order:</b>				Item Specific Help
1: USB LS120: 2: USB KEY: 3: IDE CD: HL-DT-ST DVDRAM GSA-H10N- 4: USB CDROM: 5: IDE 0: 6: IDE 1: 7: IDE 2: Hitachi HDS721680PLA380- (8:  <b>Excluded from boot order:</b> : IDE 3: : IDE 4: Hitachi HDS721680PLA380- (8: : IDE 5: Hitachi HDS721680PLA380- (8: : USB FDC: : USB HDD: : USB ZIP: : PCI SCSI:				Keys used to view or configure devices: Up and Down arrows select a device - <=> and <=> moves the device up or down. <F5> or <F6> specifies the device fixed or removable. <X> exclude or include the device to boot. <Shift + 1 enables or disables a device. <1 - 4> Loads default boot sequence.
<b>F1 Help</b> <b>↑↓</b> Select Item <b>-/+</b> Change Values <b>Esc Exit</b> <b>←→</b> Select Menu <b>Enter</b> Select ▶ Sub-Menu				<b>F9 Setup Defaults</b> <b>F10 Save and Exit</b>

17. If the boot order is not the same as shown in step 16, or if one or more of the devices that should appear in the **Boot priority order** list appears in the **Excluded from boot order** list, do the following:
- Using the arrow keys, select the device that you want to appear in the Boot priority order list.
  - On your keyboard, press the X key to add the selected device to the bottom of the Boot priority order list.
  - Move the selected device to its correct position in the **Boot priority order** list.
    - Press X repeatedly until the device reaches the correct order in the list.
18. Select the **Exit** menu.

Phoenix cME FirstBIOS Pro Setup Utility				
Main	Advanced	Security	Boot	Exit
<b>Exit Saving Changes</b> <b>Exit Discarding Changes</b> <b>Load Setup Defaults</b> <b>Discard Changes</b> <b>Save Changes</b>				Item Specific Help  Exit System Setup and save your changes to CMOS.
<b>F1 Help</b> <b>↑↓</b> Select Item <b>-/+</b> Change Values <b>Esc Exit</b> <b>←→</b> Select Menu <b>Enter</b> Select ▶ Sub-Menu				<b>F9 Setup Defaults</b> <b>F10 Save and Exit</b>

19. Using the arrow keys, select **Exit Saving Changes** and press ENTER.

20. To view the BIOS setup utility Setup Utility summary window in detail, when the system starts or restarts and the window appears, immediately press PAUSE BREAK on your keyboard.
21. Press any key to continue.

You have completed Configuring the Computer BIOS.

### Configuring the Gigabit Ethernet Controller

You do not need to set any jumpers or configure the controller. The device driver that enables the operating system to address the controller is automatically installed from DVD #1 (Fast Install SLP).

## 3.2 General Diagnostic Tools

The following tools are available to help you identify and resolve hardware-related issues:

- PC health monitoring
- POST (Power-On Self-Test) beep codes, error messages, and error logs—POST generates beep codes and messages to indicate successful test completion or the detection of a problem.

For more information, see *POST (Power On Self Test)* on page 71.

### 3.2.1 PC Health Monitoring

This section describes the PC health monitoring features of the system board. The system board has an onboard system hardware monitor chip that supports PC health monitoring.

An onboard voltage monitor will scan these voltages continuously. Once a voltage becomes unstable, a warning is raised or an error message is sent to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor. To adjust the sensitivity, open the BIOS utility and select **Advanced > Hardware Monitor**.

### Fan Status Monitor with Firmware/Software On/Off Control

The PC health monitor can check the RPM status of the cooling fans. The onboard 3-pin CPU and chassis fans are controlled by the power management functions. The thermal fan is controlled by the overheat detection logic.

### Environmental Temperature Control

The system board has a CPU thermal trip feature. A thermal control sensor monitors the CPU temperature in real time and will send a signal to shut down the system whenever the CPU temperature exceeds a certain threshold. This works to protect the CPU from being damaged by overheating.

## Hardware BIOS Virus Protection

The system BIOS is protected by hardware so that no virus can infect the BIOS area. This feature can prevent viruses from infecting the BIOS area and destroying valuable data.

## Auto-Switching Voltage Regulator for the CPU Core

The 3-phase-switching voltage regulator for the CPU core can support up to 60 A current and auto-sense voltage IDs ranging from 1.1 V to 1.85 V. This will allow the regulator to run cooler and make the system more stable.

### 3.2.2 POST (Power On Self Test)

When you turn on the IC-304 print controller, it performs a series of tests to check the operation of its components and some of its installed options.

If POST finishes without detecting any problems, a single beep sounds, and the first screen of the operating system or software program appears.

If POST detects a problem, more than one beep sounds and an error message may appear on the screen.

**Note:** A single problem might cause several error messages.

### POST Beep Codes

Beep codes are sounded in a series of beeps.

- One short beep indicates the successful completion of POST.
- One long beep and two short beeps indicate that there is a video configuration error.
- A continuous beep indicates that no memory is detected.
- Other beep codes are detailed in the following table.

Code	Beep	POST Routine Description	Recovery Action
16h	1-2-2-3	BIOS ROM checksum	<ul style="list-style-type: none"> <li>▪ Try saving the BIOS.</li> <li>▪ Replace the system board.</li> </ul>
20h	1-3-1-1	Test DRAM refresh	<ul style="list-style-type: none"> <li>▪ Try replacing the memory.</li> <li>▪ Replace the system board.</li> </ul>
22h	1-3-1-3	Test 8742 keyboard controller	Replace the keyboard.
2Ch	1-3-4-1	RAM failure on address line	Replace the memory.
2Eh	1-3-4-3	RAM failure on data bits of low byte of memory bus	Replace the memory.
46h	2-1-2-3	Check ROM copyright notice	Replace the system board.

Code	Beep	POST Routine Description	Recovery Action
58h	2-2-3-1	Test for unexpected interrupts	<ul style="list-style-type: none"> <li>▪ Remove and reseat the PCI adapters, one at a time, check if faulty, and replace the faulty adapter.</li> <li>▪ Reload a different BIOS.</li> <li>▪ Replace the system board.</li> </ul>
98h	1-2	Search for option ROMs. One long, two short beeps on checksum failure	<ul style="list-style-type: none"> <li>▪ Try reloading the BIOS.</li> <li>▪ Replace the system board.</li> </ul>
B4h	1	One short beep before boot	The system is functioning correctly.

### 3.3 IC-304 Print Controller Hardware Diagnostics Software

The IC-304 print controller diagnostics software is used for testing both proprietary Creo hardware (FusionIN) and standard off-the-shelf hardware.

There is JOIND (Java Over the Internet Diagnostics)—an IC-304 print controller client/server diagnostic controller—that runs locally or over a TCP/IP connection. JOIND runs under a Windows platform (NT/98/2000/XP) and enables local diagnostic testing of IC-304 print controller products with user level support.

If you encounter any problems during installation or during normal operation of the IC-304 print controller, run the IC-304 print controller diagnostics software to determine the cause.

The diagnostic software is located on the IC-304 print controller. The software receives and executes test requests and returns appropriate status responses.

A hierarchical diagnostics tree shows the FRUs (field replacement units) that can be tested by JOIND (IC-304 print controller diagnostics software). You can select an individual component from the tree for testing, run batch tests of selected components, or run a general test of all units by selecting the **DFE** option.

Results appear as PASS/FAIL.

### 3.3.1 Activating the Diagnostics Software

**Notes:**

Only run the Diagnostics utility after you exit the IC-304 print controller software.

Wait for the IC-304 print controller software taskbar icon to disappear before continuing.

### Quitting the IC-304 Print Controller Software

1. In the IC-304 print controller workspace, click the **File** menu and select **Exit**.
2. Right-click the IC-304 print controller software icon in the Windows Quick Launch toolbar and select **Shutdown Color Server**.

### Starting the Diagnostics Software

1. From the Windows **Start** menu, select **IC-304 > IC-304 Tools > Diagnostics**.
2. The diagnostics program initializes and the DFE User Diagnostics window appears on the screen. See *The Diagnostics Window* on page 73.

### 3.3.2 The Diagnostics Window

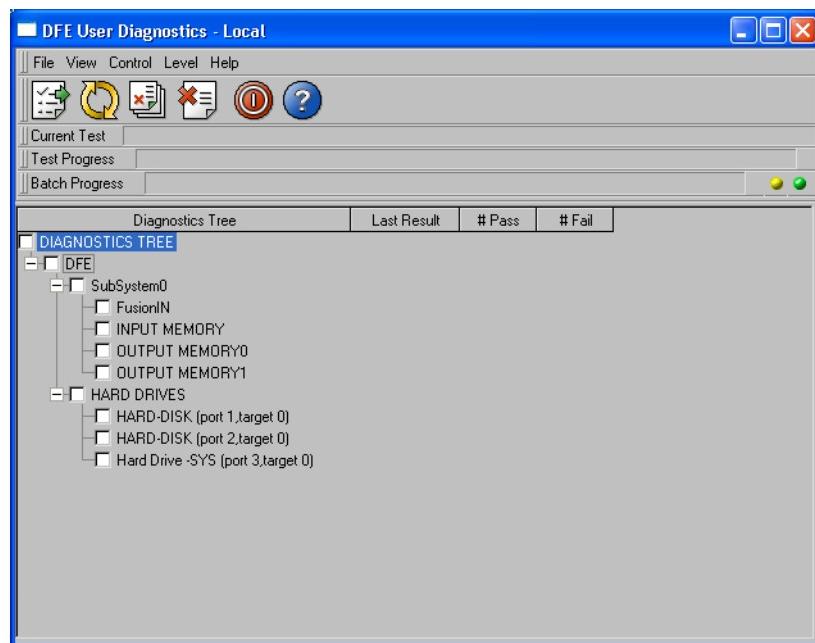


Figure 1: The DFE User Diagnostics window

The DFE User Diagnostics window is divided into four sections:

- The top section contains the Main Menu bar with five different menu options: **File, View, Control, Level, and Help**.
- The next section under the Main Menu bar contains shortcut buttons for performing the main **JOIND** operations.
- The third section is a monitoring area in which the progress of the tests appears.
- The fourth section is the Diagnostics tree (on the left) which displays boards and components to be tested. On the right, it displays results as Pass or Fail. The last result test performed on a specific component or batch of components also appears.

### 3.3.3 Main Menu Options

#### File Menu

<b>Load Quick Batch</b>	Is a predefined representative set of components to be tested coupled with predefined tests to be run. Select <b>Load Quick Batch</b> to load this set of components to be tested.  To execute the batch test, select <b>Load Quick Batch</b> . A confirmation message appears. Click <b>OK</b> , and then click the <b>Run</b> icon.  This is not the default setting and should be used only when a quick testing set is needed, as its name implies.
<b>Import Log File</b>	Imports the current log file from the server to the client.
<b>Exit</b>	Quits the POS User Diagnostics software.

#### View Menu

<b>Test Log File</b>	Stores information sent by JOIND. For each executed test, JOIND uses this file to record the date and time of execution, the loop number, the name of the test and the test result. If the <b>Rerun</b> mechanism is ON, results for all reruns are recorded. It is recorded in an HTML file and appears through the HTML browser.
<b>Software Configuration</b>	Displays the software version information of JOIND (client and server). It is recorded in an HTML file and appears through the HTML browser.
<b>Hardware Configuration</b>	Displays hardware information that is recorded in an HTML file and appears through the HTML browser. Not applicable in this version.

## Control Menu

<b>Run</b>	Initiates a test session, after the items for testing in this session are marked in the check boxes. When <b>Loop Off</b> is selected, the test session terminates after each test has been executed. When <b>Loop On</b> is selected, the loop sequence is toggled on and the test session repeats until the loop termination condition is reached.
<b>Run Until Fail</b>	Initiates a test session, after the items for testing in this session are marked in the check boxes. When <b>Loop Off</b> is selected, the test session terminates after each test has been executed or until the first failure is detected by any test, whichever comes first. When <b>Loop On</b> is selected, the test session repeats until the loop termination condition is reached or once a failure is detected, whichever comes first.

## Level Menu

<b>User</b>	The default setting for the diagnostic testing and operations on the diagnostic tree that provides indications regarding faulty field replacement units (FRUs).
-------------	---

## Help Menu

<b>Online Help</b>	Loads the HTML page that has access to all the topics below.
<b>JOIND Components and GUI</b>	Introduction to the IC-304 print controller Remote Support concept and describes the JOIND components and GUI.
<b>Activating the JOIND</b>	Describes the access modes Remote Support and how to run them.
<b>The JOIND Main Window</b>	Describes the JOIND main window, menus and options.
<b>The JOIND Menu Options</b>	Description of the menu and sub-menus.
<b>POS</b>	Not applicable.
<b>About JOIND</b>	Displays the JOIND version number and date.

## Shortcut Buttons

The shortcut buttons are found beneath the main menu bar and are available for performing the main operations when running diagnostics tests.

	Initiates the <b>Run</b> command to perform a diagnostic test running in loop or executing batch of tests.
	Terminates a test running in loop or executing batch of tests. This button appears only after the <b>Run</b> button was selected.
	Appears after the <b>Stop</b> button is selected or until the current test is completed.
	Activates the <b>Errors</b> command and accesses the <b>Error Buffer</b> for all tests run or a Quick Batch. The contents of this buffer are recorded in an HTML file which appears through the HTML browser.
	Enables quick access to the <b>Error Buffer</b> of a selected test. The contents of this buffer are recorded in an HTML file which appears through the HTML browser.
	Executes the <b>Loop Until Abort</b> command, which toggles the test sequence to <b>Loop On</b> . <b>Loop Off</b> is the default setting when executing diagnostic tests.
	Toggles the test sequence to <b>Loop Off</b> .
	Quits the diagnostics software. Remember to stop any tests that are running before exiting.
	Selects specific menu options or tree nodes when help is required.

## Monitoring

The monitoring area is beneath the shortcut buttons. It displays three levels of monitoring progress:

Current Test	Shows the progress of the specific test to be performed.
Test Progress	Shows the progress of component tests of a batch run.
Batch Progress	Shows the progress of the entire batch being run.

### 3.3.4 Board Diagnostics

This section describes the diagnostics for the IC-304 print controller boards.

The board included in this category is FusionIN.

Use the JOIND diagnostic utility to test the IC-304 print controller boards. If a board fails a test, first verify that it is properly connected (turn off the IC-304 print controller and check the board connections including cables and pins; sometimes boards may become loose in the PCI slot).

**Important:** Replace a board or a system component that continues to fail its diagnostics test.

**Note:** Exit the IC-304 print controller software prior to running the diagnostics program.

#### FusionIN Board

##### Testing Input/Output Memory Modules

Tests the input and output memories on the FusionIN board.

##### Testing the FusionIN Board

Tests the internal electrical mechanism of the FusionIN board.

### 3.3.5 Performing a Diagnostic Test

**Important:** Prior to activating the diagnostics software, verify that the drivers were loaded successfully (with no error messages during driver loading).

1. Access the JOIND software. See *Activating the Diagnostics Software* on page 73.
2. Select the components for testing from the diagnostics tree, or select **DFE** to test the entire tree, or select **Load Quick Batch** from the **File** Menu. See *File Menu* on page 74.
3. Click the **Loop** button to run the tests in loop mode.
4. Click the **Run** button to activate the diagnostics testing.
5. The system performs the tests and the results appear in the area of the diagnostics tree: Pass or Fail.
6. If there are components that fail, click the **Errors** button to view all failed components or click the **Quick Error** button to view a specific selected test. See the IC-304 Print Controller User Guide.

## Diagnostics Test Results

This section lists the possible results of the diagnostics test and the recovery actions.

Symptom	Recovery Action
The FusionIN board fails the test.	<ol style="list-style-type: none"> <li>Verify that the FusionIN board is correctly seated.</li> <li>Verify that the memory tests passed. If one or both memory tests failed, replace the failed memory module and run the FusionIN test again.</li> <li>If the FusionIN test fails again, replace the FusionIN board.</li> </ol>
The Input Memory fails the test.	<ol style="list-style-type: none"> <li>Verify that the input memory is correctly seated.</li> <li>Replace the input memory module and run the diagnostics test.</li> <li>If the input memory fails again, replace the FusionIN board.</li> </ol>
The Output Memory fails the test.	<ol style="list-style-type: none"> <li>Verify that the output memory is correctly seated.</li> <li>Replace the output memory module and run the diagnostics test.</li> <li>If the output memory fails again, replace the FusionIN board.</li> </ol>

## 3.4 Troubleshooting

The first group of troubleshooting procedures relate to the three main situations:

- The IC-304 print controller does not turn on.
- The IC-304 print controller turns on, but the operating system does not initialize.
- The IC-304 print controller turns on, the operating system initializes but fails to execute commands.

The next set of troubleshooting procedures relate to:

- Memory, expansion enclosure, monitor, and common problems
- Printer cable faults
- Temperature and general power checkouts
- Handling error messages
- Collecting data log files

### 3.4.1 IC-304 Print Controller Does Not Turn On

Symptom	Recovery Action
IC-304 print controller does not turn on.	<p>Verify that:</p> <ul style="list-style-type: none"><li>▪ The power cables are properly connected to the IC-304 print controller</li><li>▪ The electrical outlet functions properly</li><li>▪ The power-on LED is illuminated</li><li>▪ There are no short circuits between the system board and the chassis</li><li>▪ The memory DIMMs are correctly seated</li></ul> <p>Then:</p> <ol style="list-style-type: none"><li>1. Turn the power on and off to test the system.</li><li>2. The battery on your system board may be old. Verify that it still supplies ~3 volts DC; if not, replace the battery.</li><li>3. If you just installed an option, remove it and restart the IC-304 print controller. If it turns on, you might have installed more options than the power supply supports.</li><li>4. Review <i>General Power Checkout</i> on page 84.</li><li>5. If the problem remains, escalate the service call.</li></ol>

### 3.4.2 IC-304 Print Controller Turns On, No Operating System

In this situation it is not possible to run the JOIND diagnostics software.

Symptom	Recovery Action
The operating system does not initialize.	<p>Verify the following:</p> <ul style="list-style-type: none"> <li>▪ The SATA2 cables and the power cables are properly connected.</li> <li>▪ The system disk is not damaged physically.</li> <li>▪ The boot order is correct.</li> </ul> <p>To verify the boot order:</p> <ol style="list-style-type: none"> <li>1. Restart the server.</li> <li>2. Press <b>DELETE</b> to enter the computer BIOS.</li> <li>3. Use the arrow keys to select the <b>Boot</b> menu.</li> <li>4. Verify the boot order is the same as shown in step 16 on page 69.</li> <li>5. Reload the operating system; see page 5.</li> <li>6. Replace the system disk.</li> </ol>

### 3.4.3 IC-304 Print Controller Does Not Execute Commands

In this situation it is possible to run the JOIND diagnostics software.

Symptom	Recovery Action
The FusionIN board does not appear when running diagnostics.	<ol style="list-style-type: none"> <li>1. Verify that the FusionIN board is correctly seated.</li> <li>2. Replace the input memory located on the FusionIN board.</li> <li>3. Replace the FusionIN board.</li> </ol>
A disk is not functioning properly.	<ol style="list-style-type: none"> <li>1. Check that the disk is correctly installed.</li> <li>2. Verify that each SATA2 cable is connected to the correct disk and system board connector.</li> <li>3. Verify that the voltage cable to each disk is securely connected.</li> </ol>
Several tests fail as a result of a particular failure.	When there is a memory failure, all other tests are useless. Replace the faulty memory and run tests on the board again.

### 3.4.4 Memory Problems

Symptom	Recovery Action
The amount of memory displayed is less than the amount of memory installed.	<p>Verify that:</p> <ol style="list-style-type: none"> <li>1. The memory modules are seated properly.</li> <li>2. You installed the correct type of memory (ECC DDR2 memory, part number Creo 102-00105).</li> <li>3. If you changed the memory modules, they are installed on the system board in DIMMs 1A and 2A. Do not use any other DIMM banks. See <i>Installing a DIMM</i> on page 102.</li> <li>4. Check for faulty DIMM modules or slots by swapping a single module between two slots and noting the result.</li> <li>5. Check that the 115/230 V power-supply switch is correctly set.</li> <li>6. If the memory tests fail, replace the failing DIMM.</li> </ol>

### 3.4.5 Monitor Problems

Symptom	Recovery Action
The IC-304 print controller monitor is blank.	<p>Verify that:</p> <ol style="list-style-type: none"> <li>1. The power cord is plugged into the IC-304 print controller and a working electrical outlet.</li> <li>2. The monitor cables are connected properly, including the AC adapter.</li> <li>3. The monitor is turned on and the brightness and contrast controls are adjusted correctly.</li> <li>4. Connect the monitor to a portable workstation to check its working status. If the problem persists, replace the monitor with a confirmed working monitor. If this monitor works, replace the original monitor.</li> <li>5. If the power is on and there is still no video, remove all the add-on adapters and cables, and use the speaker to determine if any beep codes exist. See <i>POST Beep Codes</i> on page 71.</li> <li>6. If the problem persists and the screen remains blank, contact your support person.</li> </ol>

### 3.4.6 Common Problems

Symptom	Recovery Action
During installing the operating system, you see a blue screen.	<ol style="list-style-type: none"> <li>Restart the computer.</li> <li>If you just installed an option, remove it and restart the IC-304 print controller.</li> </ol>
An image disk is not identified.	<p>Check the following:</p> <ul style="list-style-type: none"> <li>The disk cables.</li> <li>That the disk is mounted correctly in the disk bay. If the problem persists, replace the disk.</li> </ul>
The system disk cannot be identified.	<ol style="list-style-type: none"> <li>Check that the power cable and the SATA2 are properly connected to the disk.</li> <li>See the procedure to identify the operating system in <i>IC-304 Print Controller Turns On, No Operating System</i> on page 80.</li> </ol>
The DVD-RW drive is not identified.	<ol style="list-style-type: none"> <li>Restart the server and press DEL to enter the BIOS setup utility Setup Utility. See <i>Using the Phoenix cME FirstBIOS Pro Setup Utility</i> on page 62.             <ol style="list-style-type: none"> <li>In the <b>Main</b> menu, verify the following settings:                     <ul style="list-style-type: none"> <li>Serial ATA is <b>[Enabled]</b></li> <li>Native Mode Operation is <b>[Auto]</b></li> <li>SATA RAID Enable <b>[Disabled]</b></li> <li>SATA AHCI Enable <b>[Disabled]</b></li> </ul> </li> </ol> </li> <li>If the problem persists, check that the SATA cable and the power cable are firmly situated in the IC-304 print controller.</li> <li>If the above mentioned items are working, replace the DVD-RW drive.</li> </ol>
The system's setup configuration is lost.	<p>The battery on your system board may be old. Verify that it still supplies approximately 3 volts DC; if not replace the battery.</p> <p>If this does not help, escalate the service call.</p>

### 3.4.7 FusionIN to Printer Cable Faults

The IC-304 print controller is connected to your printer with one printer cable that carries the following data and configuration details between server and printer:

- Information on your printer's power condition
- CMYK data

## Symptoms and Troubleshooting

Symptom	Recovery Action	Further Action (if printing fails)
General	<ol style="list-style-type: none"> <li>1. Shut down your printer and the IC-304 print controller.</li> <li>2. Check that the FusionIN printer cable is securely connected to the IC-304 print controller port.</li> <li>3. Start the server.</li> <li>4. Wait until the IC-304 print controller splash screen disappears.</li> <li>5. Start your printer.</li> </ol>	<p>➤ If printing fails, refer to the next symptom.</p>
Before you print, the printer animation shows green indicating that the printer is ready. After sending the job, the printer appears to be warming up but does not print.	<ol style="list-style-type: none"> <li>1. Check if the Print Queue is in <b>Enable</b> mode.</li> <li>2. Check if there is no alert message that indicates that a different paper size or type is required.</li> <li>3. Check that there is no error message on your printer's user interface.</li> <li>4. Shut down your printer.</li> <li>5. Replace the FusionIN printer cable.</li> <li>6. Start your printer.</li> <li>7. Send a print job.</li> </ol>	<p>➤ If printing fails with no communication error, replace the FusionIN printer cable.</p>
No communication after following the correct startup procedure.	<ol style="list-style-type: none"> <li>1. Restart both your printer and the IC-304 print controller according to the startup procedure.</li> <li>2. Send a print job.</li> </ol>	<p>➤ If printing fails with no communication error, replace the FusionIN printer cable.</p>
Job printed with one color overlay, or printed output results appear with scratches (white lines) in one of the CMYK color combinations.	<ol style="list-style-type: none"> <li>1. Shut down both the IC-304 print controller and your printer.</li> <li>2. Check that the FusionIN printer cable is connected to the IC-304 print controller port.</li> <li>3. Start the server and wait until the IC-304 print controller splash screen disappears.</li> <li>4. Start your printer.</li> <li>5. Send a print job.</li> </ol>	<p>If printing fails with color overlay:</p> <ol style="list-style-type: none"> <li>1. Replace the FusionIN printer cable.</li> <li>2. If the procedure does not solve the problem, it could be a FusionIN board problem.</li> </ol>

### 3.4.8 General Power Checkout

Power problems can be difficult to troubleshoot. For instance, a short circuit can exist anywhere on any of the power distribution buses. Usually a short circuit causes the power subsystem to shut down because of an over-current condition.

A general procedure for troubleshooting power problems is as follows:

1. Turn off the system and disconnect the AC power cord(s).
2. Check for loose cables in the power subsystem. Also check for short circuits. For example, if there is a loose screw causing a short circuit on a circuit board.
3. Remove adapters and disconnect the cables and power connectors to all internal and external devices until the system is at the minimum configuration required for operation.
4. Reconnect the AC cord and turn on the system. If the system starts successfully, replace adapters and devices one at a time until the problem is isolated. If the system does not turn on from the minimal configuration, replace FRUs of minimal configuration one at a time until the problem is isolated.

### 3.4.9 Temperature Checkout

Accurate cooling of the system is important for proper operation and system reliability.

Confirm the following:

- Each of the drive bays has either a drive or a filler panel installed.
- The cover is in place during normal operation.
- There is at least 50 mm (2 inches) of ventilated space at the sides of the IC-304 print controller and 127 mm (5 inches) of space around the front and rear of the server.
- The cover is removed for no longer than 30 minutes while the server is operating.
- The fans are operating correctly and the air flow is good.
- A failed fan is replaced within 48 hours.

### 3.4.10 Error Messages

There are four types of error messages:

- System
- Hardware
- Software
- Connection

Each error message indicates a problem and sometimes also a recovery action. If the problem is not resolved after performing the recovery action, perform a diagnostics test and replace the problematic part.

The following tables contain examples of different error messages.

## System Error Messages

Message	Recovery Action
System error. Reboot the system.	<ol style="list-style-type: none"> <li>1. Restart the system from the <b>Start</b> menu.</li> <li>2. If the error message reappears, run the diagnostics test.</li> </ol>
System error. Reinstall the IC-304 print controller application.	Reinstall the IC-304 print controller software, and restart the system.

## Hardware Error Messages

Message	Recovery Action
FusionIN load failure. Reboot the system.	<ol style="list-style-type: none"> <li>1. Check that the FusionIN board is seated correctly and restart the system.</li> <li>2. Run the diagnostics test.</li> <li>3. If the error message still appears, replace the board.</li> </ol>

## Software Error Messages

Message	Recovery Action
Failed to spool the file during job submission	Check the image disk space and free disk space, if required.
Failed to locate the thumbnail for element <name of element> in the job <job name>	Repeat the RIP process.
Wrong striping configuration—reboot the computer and configure the striping	Re-create striping. See <i>Disk Striping</i> on page 42.

## Connection Error Messages

Message	Recovery Action
Ethernet connection failure	<ol style="list-style-type: none"> <li>1. Check the cable connections.</li> <li>2. Restart the client workstation computer and the IC-304 print controller.</li> <li>3. Check the communication parameters in the client workstation computer and the IC-304 print controller.</li> </ol>

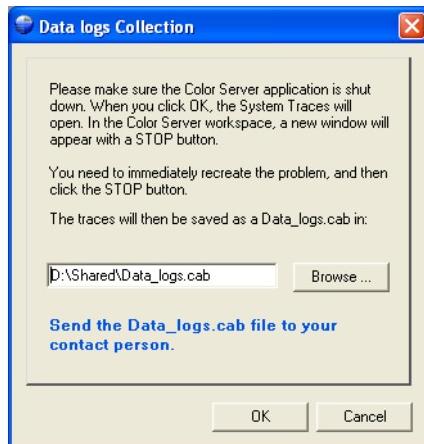
### 3.4.11 Collecting Data Log Files

The data logs collection feature enables you to collect log files from both the IC-304 print controller software and system board.

When troubleshooting a problem in the system, you may be requested to recreate the problem with the data log collection tool enabled and send the trace results to your service representative.

#### Collecting the Data Logs

1. Shut down the IC-304 print controller software.
2. From the Windows **Start** menu, select **IC-304 > IC-304 Tools > Data Logs Collection**.



#### Saving the Data Logs

1. If you accept the default cab file location, click **OK** and proceed to step 3.
2. If you want to save the cab file to another location, click **Browse**, select the new location, click **Save**, and then **OK**.

3. Restart the IC-304 print controller software.



4. Recreate the problem you have encountered and then click the **STOP** button.

The IC-304 print controller software closes automatically and the log files are saved as a **Data\_logs.cab** file in **D:\ Shared**, or in the location previously specified in step 2.

### Sending the Data Logs

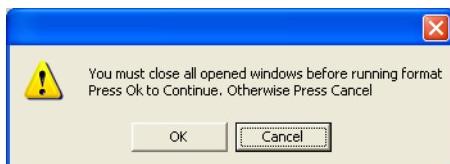
- Send the **Data\_logs.cab** file to your service representative.

## 3.4.12 Formatting the Image Disk

Perform the following procedure when suggested as a recovery action.

**Important:** Formatting erases all data stored in the Storage folder. It is recommended to back up your data, if possible, to an external device or network.

1. Close all software programs and wait for them to shut down completely.
2. From the Windows **Start** menu, select **IC-304 > IC-304 Tools > Format Image Disks**.



3. Close all open windows, if required, and click **OK**.



4. Click **OK**.



5. Click **Yes**.



6. Click **OK**.
7. To enable the changes to take effect, restart your computer.

# 4

## Hardware and Maintenance Repairs

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## 4.1 System Components

Use the following diagram to locate a specific part for replacement. In the *Spare Parts List* on page 91, each number in the Item number column corresponds to a spare part—not all the parts in the spare parts list are illustrated.

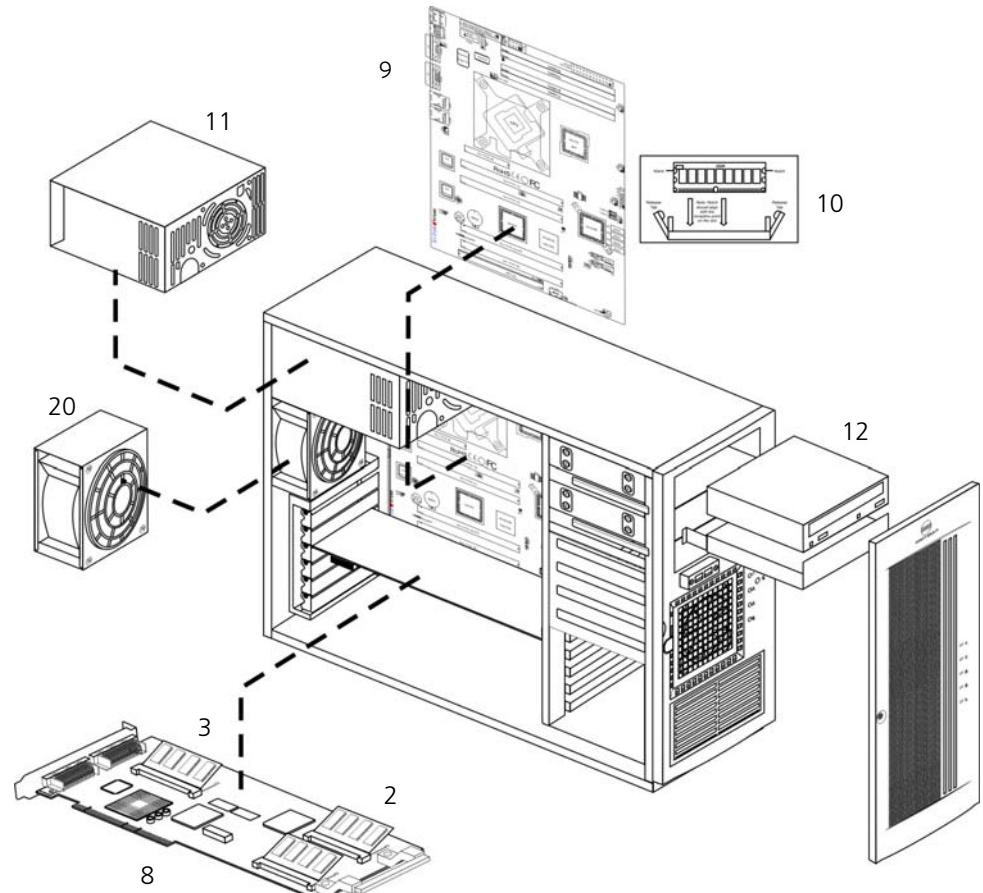


Figure 1: Spare parts diagram

## 4.2 Spare Parts List

**IC-304 Print Controller Spare Parts List (FRUs- Field Replaceable Units)**

Item Number	Description	Creo Part Number	Type	Qty/Unit
1.	Processor, Intel Core2 Duo, E8400, 3.0 GHz, 6 MB cache, 1333 MHz FSB	104-00066	CPU processor	1
2.	DDR SDRAM, 256 MB, SODIMM200, 4×32M×16, 6NS, LF	120-00105	Output memory FusionIN	2
3.	IC, DDR SDRAM, 512 MB, 2.7 GB/S, 200P-SODIMM, LF	120-00106	Input memory FusionIN	1
4.	Power cord (3 conductors) 3 m/9.84 ft. C-13 connector	216-00160	Third party	2
5.	Power cord, 10 A, 250 V, C-13 connector [LF]	216-00161	Third party	2
6.	Cable FusionIN to printer assy (3 m/9.84 ft.), LF	220-01702A	Cable, server to printer	1
7.	Cable Computer	609-00388	Cable	1
8.	Board FusionIN, LF	503-00351A	Creo	1
9.	System board Supermicro X7SBE	609-00502	Third party	1
10.	System Memory 512 MB, DDR2 ECC 800 MHz	609-00500	Third party	2
11.	Power supply, 350W	166-00096	Third party	1
12.	DVD-RW drive (black)	607-00226	Third party	1
13.	Monitor LCD, 17" (silver)	608-00056	Third party	1
14.	Keyboard and Mouse basic, black	609-00343	Third party	1
15.	Hard disk drive SATA2, 250 GB, 7200 RPM	607-00198	Third party	3
16.	Universal Stand Type II	518-01588A	Creo	1
17.	X-Rite i1® spectrophotometer	600-00051	Third party	1
18.	Calibration chart kit	518-00961A	Creo	1

### IC-304 Print Controller Spare Parts List (FRUs- Field Replaceable Units)

Item Number	Description	Creo Part Number	Type	Qty/Unit
19.	Fan, 12 V (92 x 92 mm)	220-01391A	Third party	2
20.	Fan, computer rear (120 x 120 mm)	609-00393	Third party	1
21.	Fan, CPU CORE2 DUO Processor	609-00426	Third party	1
22.	IC-304 software kit v2.0 SLP	634-00440E	Creo	1

## 4.3 Before You Begin

Before you begin to replace parts:

- Become familiar with the safety and handling guidelines specified in *Safety Information (Multi-Language)* on page ix. These guidelines will ensure your safety while working with the IC-304 print controller and its options.
- Ensure that you have an adequate number of properly grounded electrical outlets for the server, monitor, and any options that you intend to install.
- Back up all important data before you make changes to disk drives.
- Have a small flat-blade screwdriver available.



**Warning:** Before performing any hardware maintenance or repair, turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.

### 4.3.1 System Reliability Considerations

To help ensure proper cooling and system reliability, verify that:

- The side cover is in place during normal operations.
- There is space around the IC-304 print controller to allow its cooling system to work properly. Leave about 127 mm (5 in.) of space around the front and rear of the server.
- Cables for optional adapters are routed according to the instructions provided with the adapters.
- A failed fan is replaced as soon as possible, to prevent possible damage to the boards.

### 4.3.2 SATA2 Hard Disk Drives and Controller Technology

To keep up with the latest technology, three SATA2 (Serial Advanced Technology Attachment) hard disk drives with a SATA2 controller are supplied as part of the IC-304 print controller. SATA2 is a serial link—a single thin cable that creates a point-to-point connection between devices. Transfer rates for SATA2 are at 300 MB/sec.

---

Some of the benefits of moving from Parallel ATA to Serial ATA technology are:

- Improved performance—Serial ATA is faster than Parallel ATA
- Simpler configuration—jumpers and settings eliminated
- Reduces voltage and pin count
- Smaller easier-to-route cables—eliminate the cable-length limitation and allow better airflow
- Improves data robustness
- Provides backward compatibility
- Increases disc drive data rates

## 4.4 Removing and Replacing the Side Cover and Front Panel

This section describes the procedures used to remove and replace the IC-304 print controller cover and front panel.

### 4.4.1 Removing the Side Cover

1. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.
2. If necessary, unlock the side cover.
3. Remove the two screws that secure the side cover to the rear of the server.
4. Using the side cover handle, release the side cover by sliding it toward the rear of the server.

5. Move the side cover outward and away from the server.

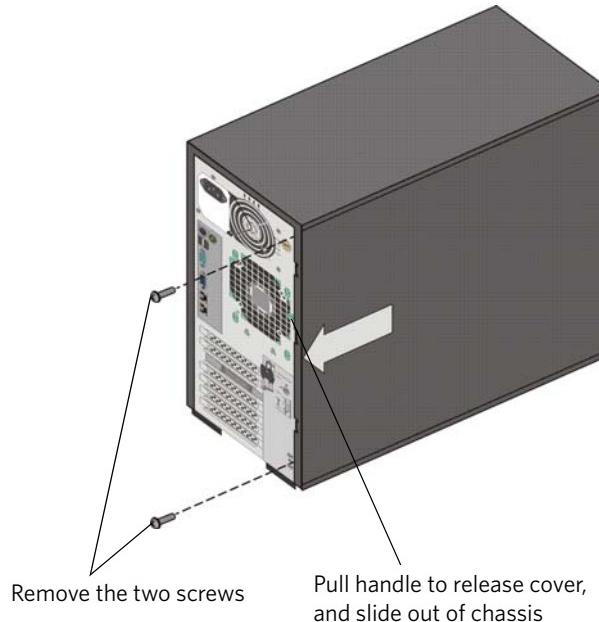


Figure 2: Removing the side cover

#### 4.4.2 Returning the Side Cover

1. Verify that the server is off and that all external cables are disconnected.
2. Clear any cables that might impede returning the side cover.
3. With the server in the upright position, rest the bottom of the side cover on the bottom rail of the chassis.
4. Align the slots in the side cover with the matching tabs in the chassis. Insert the side cover into the slots.
5. Using the side cover handle, slide the side cover toward the front of the server.
6. Return the two screws that secure the side cover to the rear of the server, and tighten.
7. Reconnect all external cables and power cords and turn on the server.



**Caution:** For proper cooling and airflow, return the side cover before turning on the server. Operating the server for extended periods (more than 30 minutes) with the side cover removed might damage server components.

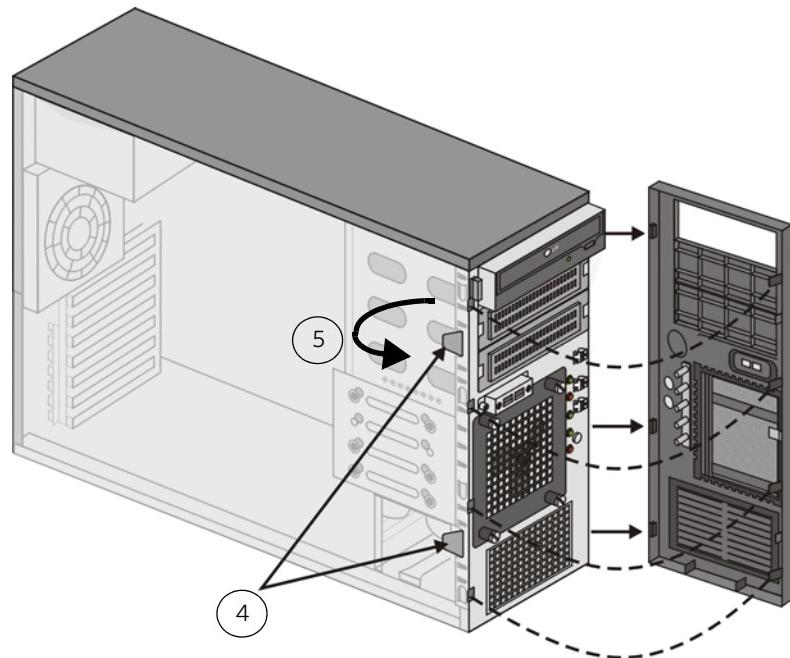
#### 4.4.3 Removing the Front Panel

1. Review *System Reliability Considerations* on page 92.
2. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.

3. Remove the side cover (see *Removing the Side Cover* on page 93).

**Tip:** It is easier to perform this procedure if you place the server on its side on a table, with the front panel of the tower computer case protruding over the table edge.

4. Inside the chassis, lift the two protruding tabs that secure the front panel to the front of the chassis and move the edge of the front panel slightly away from the chassis. See step 4 in Figure 3 and Figure 4 on page 96.
5. Using a flat screwdriver, gently pry the four concealed tabs along the edge of the front panel away from the chassis.



4. Inside the chassis, lift the two protruding tabs.
5. Pry the edge of the front panel away from the chassis and open outward.

Figure 3: Removing the front panel

6. When the front panel is free, pull it away from the front of the chassis, and then push it downward to release the concealed tabs along the bottom of the front panel from the chassis.

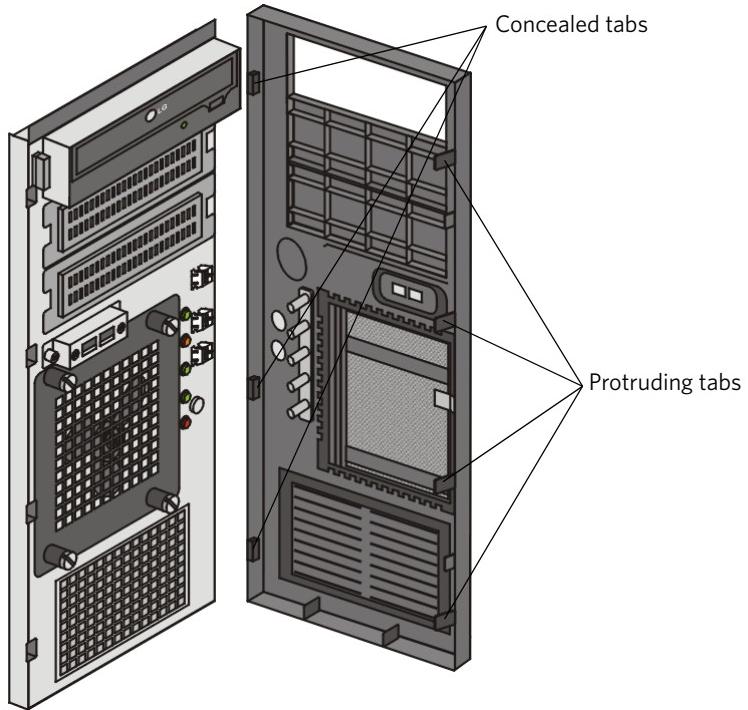


Figure 4: Front panel removed showing protruding and concealed tabs

7. Remove the front panel and store it in a safe place.

#### 4.4.4 Returning the Front Panel

1. With the IC-304 print controller on its side, insert the concealed tabs along the bottom edge of the front panel into the matching slots in the chassis.
2. Push the top of the front panel toward the server until the two protruding tabs, and the concealed tabs along the top edge of the front panel snap into place.

**Note:** While pushing the front panel into place, be careful not to damage the USB port. See Figure 4 on page 96.

3. Return the side cover. See *Returning the Side Cover* on page 94.
4. Reconnect all external cables and power cords, and turn on the server.

## 4.5 Working with Boards (Adapters)

If the diagnostics check (see Chapter 3, *Diagnostics and Troubleshooting*) indicates that any unit components need replacing, follow the replacement procedures.

The following diagram illustrates schematically the external connectivity of the peripherals and the internal connectivity of the main components of the IC-304 print controller.

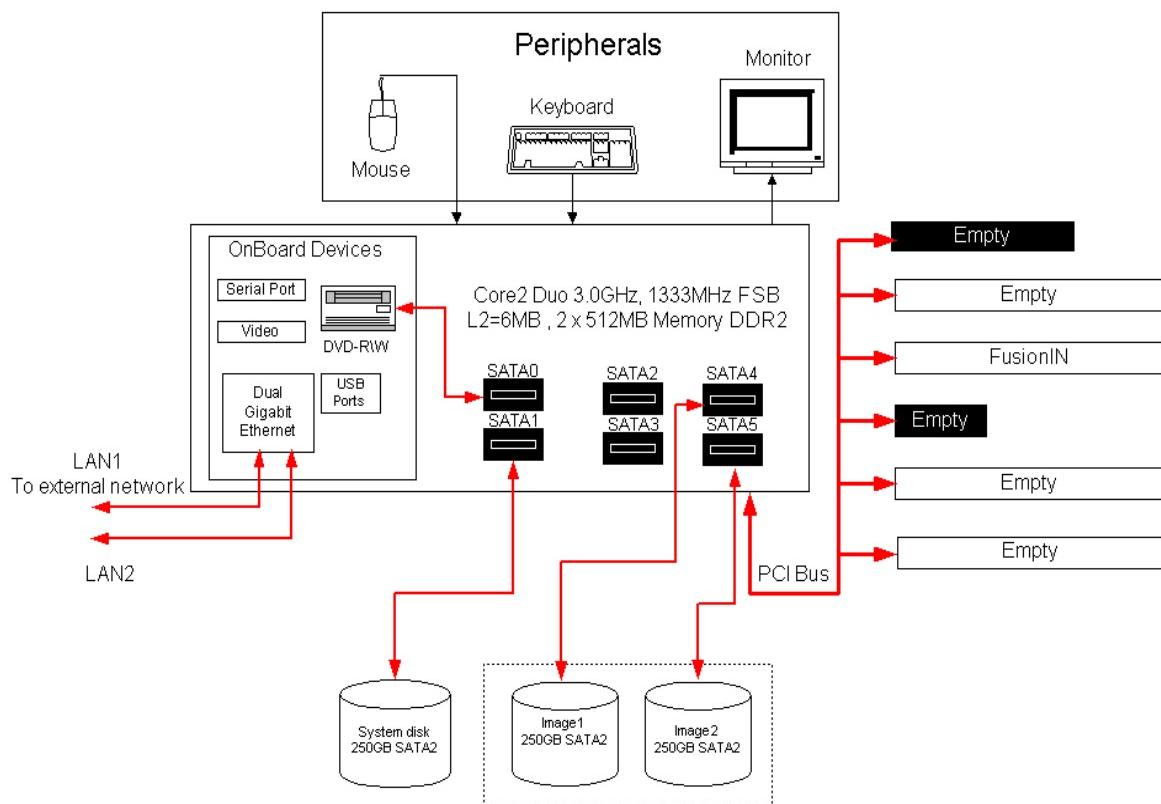


Figure 5: Peripherals and internal connectivity

### 4.5.1 Visual Inspection

Whenever you replace any component in the unit:

1. Check that all boards are retained properly in their slots.
2. Check that the cables are routed properly.
3. Check the existence of all the fans.
4. Check that all the disks are locked properly.



**WARNING:** When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details, see *Safety Information (Multi-Language)* on page ix.

## 4.5.2 Removing and Installing the FusionIN Board and Memory Modules

The FusionIN board simultaneously decompresses and RIPs data for the duration of a job. Perform the following procedures to remove and install the FusionIN board and memory modules.

**Note:** The two memory modules on the FusionIN board are identical. One module is for IN\_MEM and the other module is for OUT\_MEM. See Figure 7 on page 99.

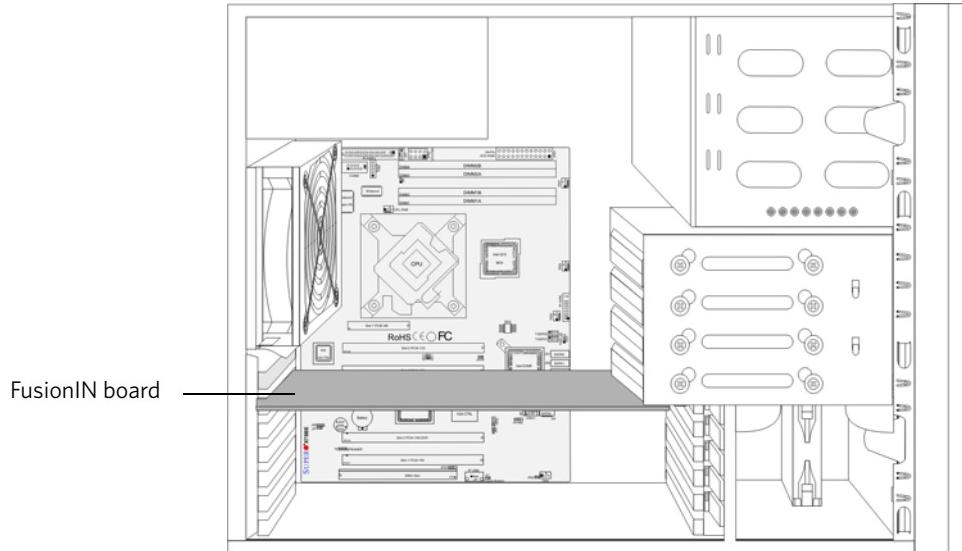


Figure 6: Boards and memory modules layout

### Removing the FusionIN Board

**CAUTION:** Before opening the unit, ensure that the power is turned OFF and that the unit is disconnected from the AC power socket.



1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.
3. Remove the side cover. See *Removing and Replacing the Side Cover and Front Panel* on page 93.
4. Using a cross-head screwdriver, remove the hex screw that holds the board at the rear of the server.
5. Grip the front left and right corners of the board between the thumb and forefingers of each hand. Gently lift the board upward.

6. Continue to lift the board and remove it from the computer.

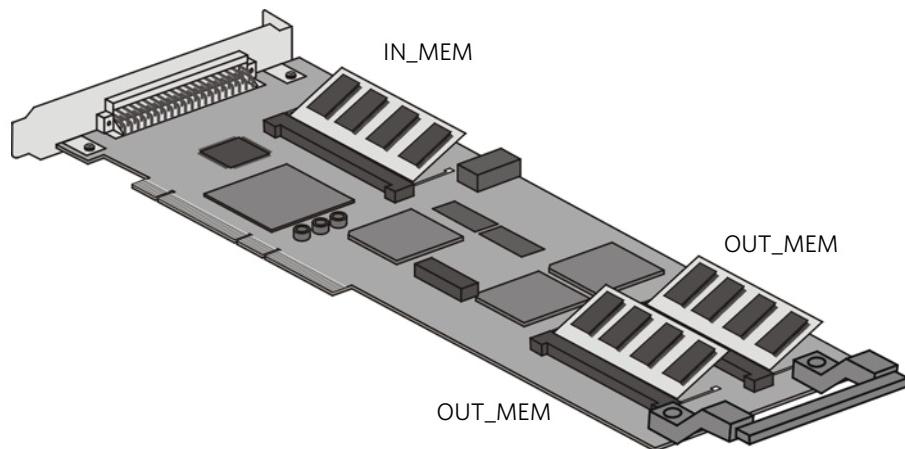


Figure 7: FusionIN board and memory modules

### Removing Memory Modules

1. Place the board, component-side up, on a flat, antistatic surface.
2. Remove the memory modules from the board positions: IN\_MEM, OUT\_MEM.
  - a. Remove a memory module from the FusionIN board by locating and opening the two locking clips (one on each side of the memory module). To open the locking clips, push the clips outward from the side of the module. See Figure 7.
  - b. Slide the memory module out of its housing.
  - c. Store the board in a safe place for future use.

### Installing Memory Modules

1. Install the memory modules in the same housing position on the new board as they were installed on the old board.

**Important:** The FusionIN memory configuration must be as follows:

Input memory = 1 X DDR: IN\_MEM

Output Memory = 2 X DDR: OUT\_MEM

2. Insert the memory module and push it gently into the housing until it is seated.

3. Push the memory module gently downward until the locking clips click into position. See Figure 7 on page 99.

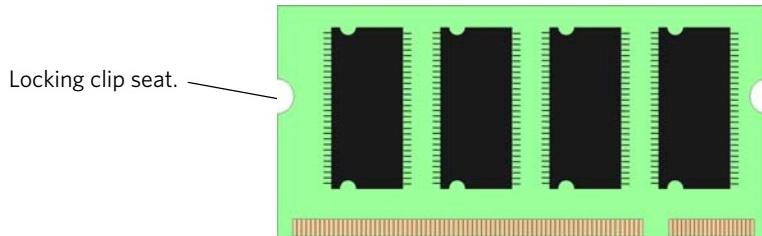


Figure 8: Memory module and locking clip seat

**Note:**

When replacing FusionIN board memory modules, verify that you are using the same memory size and type. See *Spare Parts List* on page 91.

The FusionIN board memory modules are exclusive to the IC-304 print controller and are not interchangeable with any other memory modules.

## Preparing the FusionIN Board

1. Touch the sides of the new board's antistatic packet to an unpainted area of the server chassis, and then remove the new board from the packet.



**WARNING:** Avoid touching the components and gold-plated connectors on the adapter.

2. Place the board, component-side up, on a flat, antistatic surface.

## Installing the FusionIN Board

1. Carefully grasp the board by its top edge or upper corners, and align it with the expansion slot (PCIX-133) on the system board.

2. Press the board firmly into the expansion slot. Verify that the board fits securely in the expansion slot and is locked in position.

**Attention:** When you replace a board in the server, ensure that it is completely and correctly seated in the system board expansion slot before applying power. Incorrect seating might cause damage to the system board or any other board.

3. If you have other options to remove or replace, do so now.
4. Insert the hexagonal screw that holds the board at the rear of the server and tighten it.
5. Return the side cover. See *Returning the Side Cover* on page 94.
6. Reconnect all external cables and power cords, and turn on the server.

### 4.5.3 Removing and Installing System Board Memory Modules

Your IC-304 print controller comes with Dual In-line Memory Modules (DIMMs) that are installed on the system board in DIMM bank #1A (blue) and DIMM bank #2A (blue).

**Note:** Removing or installing DIMMs may change the configuration information in the server. Therefore, after removing or installing a DIMM, save the new configuration information by using the BIOS setup utility program. When you restart the server, the system displays a message indicating that the memory configuration has changed.

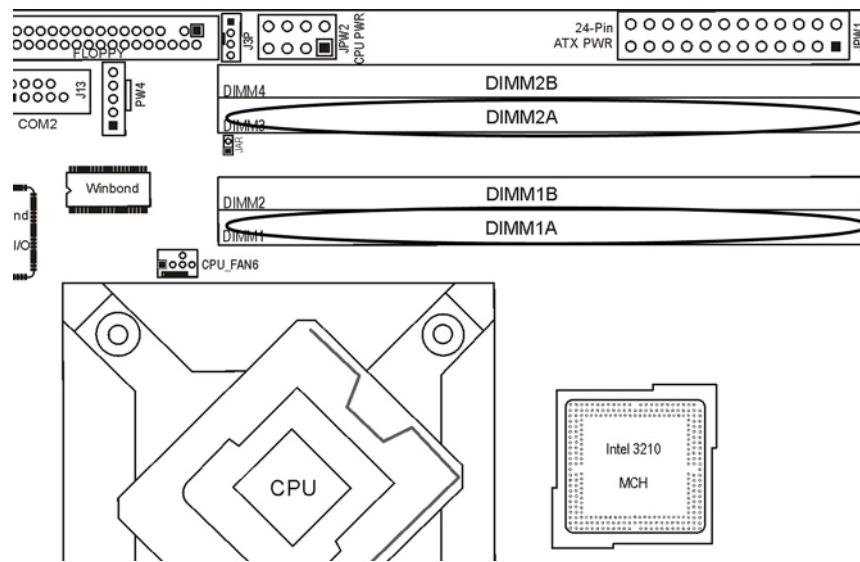


Figure 9: DIMM module locations

#### Preparing to Remove a DIMM

**Attention:** When you handle electrostatic discharge (ESD) sensitive devices, take precautions to avoid damage from static electricity.

1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.
3. Remove the side cover. See *Removing the Side Cover* on page 93.
4. Verify which DIMM you want to remove. See Figure 10 on page 102.

#### Removing a DIMM

1. Press down on the two DIMM release tabs so that they rotate outward, releasing the memory from its seat.

**Attention:** To avoid breaking the release tabs or damaging the DIMM connectors, handle the clips gently.

2. Gently pull the DIMM up and out of the server.

## Installing a DIMM

1. Touch the antistatic package containing the new DIMM to any unpainted metal surface on the server, and then remove the DIMM from the package.
2. Verify that the DIMM release tabs are open.
3. Orient the memory so that the pins align correctly with the tab.
4. Insert the DIMM into the tab by pressing, one at a time, on the edges of the DIMM. Ensure that you press the DIMM vertically into the tab. See Figure 10.

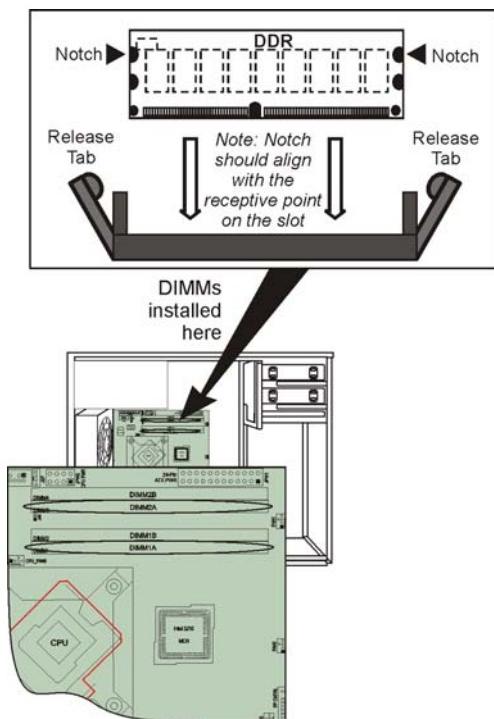


Figure 10: Installing a DIMM

5. Verify that the release tabs are in the closed position. If a gap exists between the DIMM and the release tabs, the DIMM has not been properly installed. In this case, open the release tabs, remove the DIMM, and then repeat steps 4 and 5.
6. If you have other options to remove or replace, do so now.
7. Return the side cover. See *Returning the Side Cover* on page 94.
8. Reconnect all external cables and power cords, and turn on the server.

## 4.6 Working With the System Board

This section shows illustrations of the components on the system board, and procedures for removing and installing the system board.

**Note:** It is recommended to perform all the procedures in this section with the server on its bottom on a table.

#### 4.6.1 System Board Internal Cable Connectors

The following illustration identifies system board connectors for internal cables.

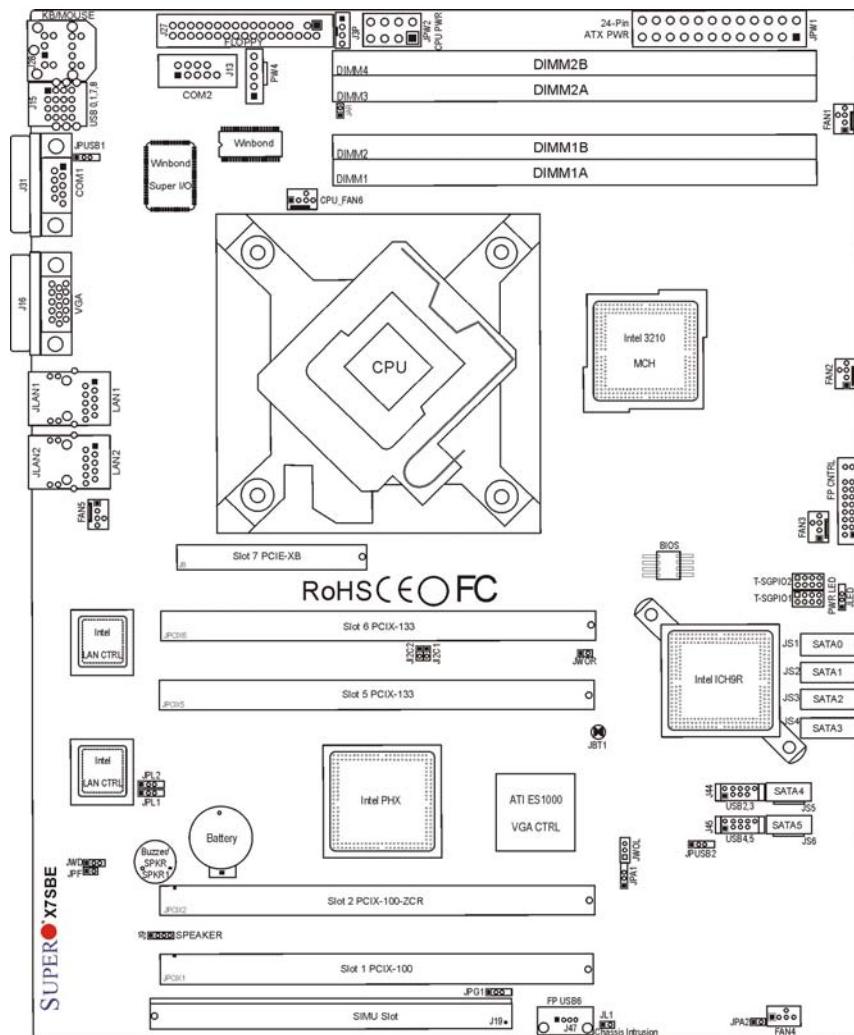


Figure 11: System board internal cable connectors

## 4.6.2 System Board External-Port Connectors

The following illustration identifies system board connectors for external devices.

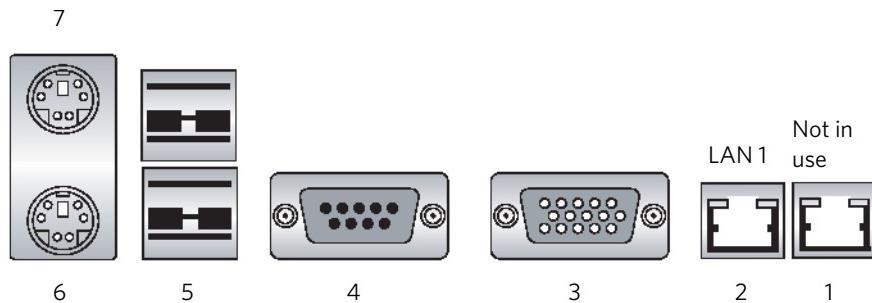


Figure 12: System board external port connectors

- 1 LAN2 (Not in use)
- 2 LAN1 (client network)
- 3 VGA port (monitor)
- 4 COM1 port (DTP)
- 5 USB ports 1/2 (mouse)
- 6 Keyboard
- 7 Optional mouse port

## 4.6.3 Removing the System Board

1. Review *Safety Information (Multi-Language)* on page ix.
  2. Turn off the IC-304 print controller and peripheral devices. Disconnect all power cords and external cables.
  3. Remove the side cover. See *Removing the Side Cover* on page 93.
- Note:** It is recommended that you place the server on its side before continuing this service procedure.
4. Remove the FusionIN board. See *Removing and Installing the FusionIN Board and Memory Modules* on page 98.
  5. Disconnect all the cables connected to the system board, power supply, and hard disks.
  6. Remove the CPU. See *Removing and Installing the Central Processing Unit (CPU)* on page 109.
  7. Remove the nine system board screws.
  8. Release the system board from the RFI clips by sliding the system board away from the rear of the server.

**Note:** Radio Frequency Interference (RFI): A high frequency, cyclic series of spikes or noise injected onto an electrical line by means of radio wave energy or by a piece of equipment connected to the line. Exists when either the transmitter or receiver is carrier operated (has an antenna), causing undesired responses to or from other electronic equipment or systems.

- 
9. Lift the system board up and out of the server.
  10. Turn over the system board and remove the metal bracket from the board. Set aside the bracket to install on the new system board.

#### 4.6.4 Installing a New System Board

**Attention:** When you handle electrostatic discharge (ESD) sensitive devices, take precautions to avoid damage from static electricity.

1. Review *Safety Information (Multi-Language)* on page ix.
2. Verify that the IC-304 print controller is turned off and that all power cords and external cables are disconnected.
3. Touch the antistatic package containing the new system board to any unpainted metal surface on the server, then remove the system board from the package and place it on the worktable.  
**Note:** The new system board includes a new black plastic CPU load plate, which you can discard.
4. Turn over the system board.
5. Attach the metal bracket to the system board.

**Note:** The IC-304 print controller is supplied with a reusable metal bracket attached to the underside of the system board. The metal bracket is part of the CPU cooling kit (Creo part number 609-00426).

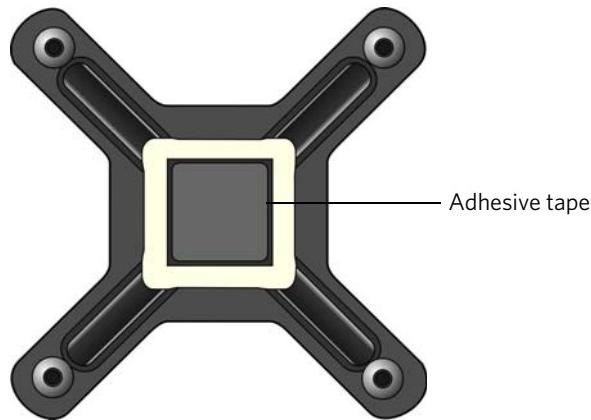


Figure 13: Metal bracket

- a. Turn over the bracket so that it is face down and align it with the diagram on the system board.

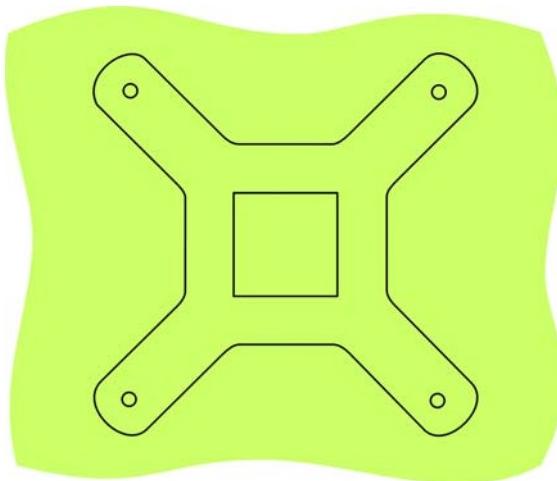


Figure 14: Diagram of metal bracket

- b. When the bracket is properly aligned (the four ends should fit into place over the holes), gently press the bracket into place.

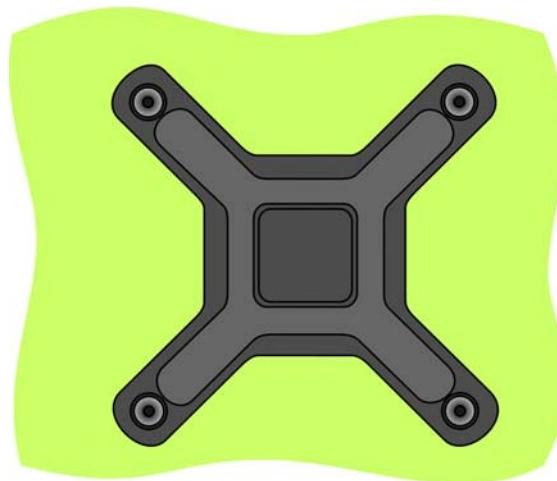


Figure 15: Metal bracket

**Note:** If you are reusing a metal bracket that was attached to a previous system board, the glue may have weakened and lost some of its adhesiveness. Therefore, make sure to support the bracket with one hand when installing the system board to its upright position,

6. While supporting the bracket with one hand, turn over the system board and place it on the worktable.
7. Return the CPU. See *Removing and Installing the Central Processing Unit (CPU)* on page 109.
8. Connect the CPU fan cable to the CPU Fan 6 connector. See Figure 11 on page 103.
9. Insert the system board into the chassis, and carefully slip it under the five RFI clips.

**Attention: Do not bend or damage the RFI clips.** Make sure that the five RFI clips make firm contact with the external-port connectors. See Figure 17.

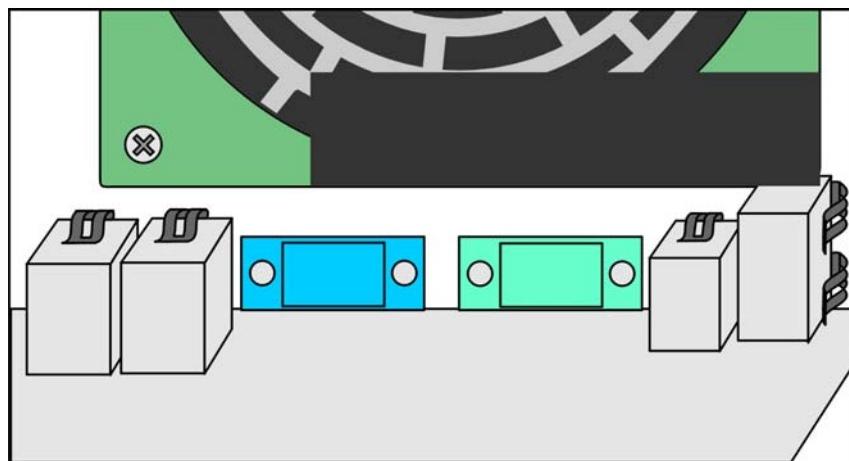


Figure 16: RFI-clip positions, internal view

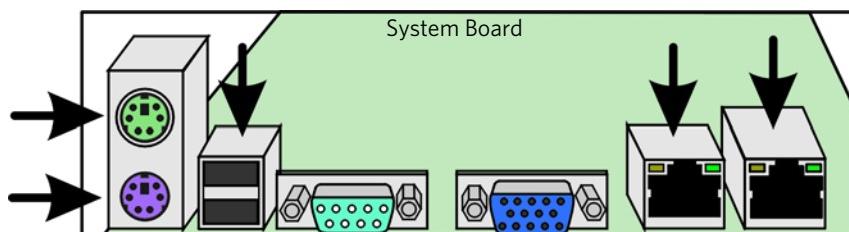


Figure 17: RFI-clip positions, external view

10. Align the system board with the matching hole in each standoff insulator in the chassis.
11. Insert the nine screws into the holes. Do not tighten the screws until all the screws are inserted.
12. Return the rear fan. See *Installing the Rear Fan* on page 124.
13. Return the memory modules. See *Installing Memory Modules* on page 99.
14. Return the FusionIN board. See *Installing the FusionIN Board* on page 100.

15. Reconnect all the cables that you disconnected from the system board, power supply unit and hard disks.

**Note:** To assist you in reconnecting the cables to the system board. See the following table and Figure 11 on page 103.

Table 1: System Board Cable Connections

Cable	System Board Connector
Power Supply	JPW1, JPW2
USB	USB 3/4 (J46)
Serial ATA	SATA 0 (DVD R/W) SATA 1 (system disk) SATA 4 (image disk 1) SATA 5 (image disk 2)
Security	JL1
CPU Fan	CPU Fan 6
Rear Fan	Fan 5
Front Fan	Fan 4

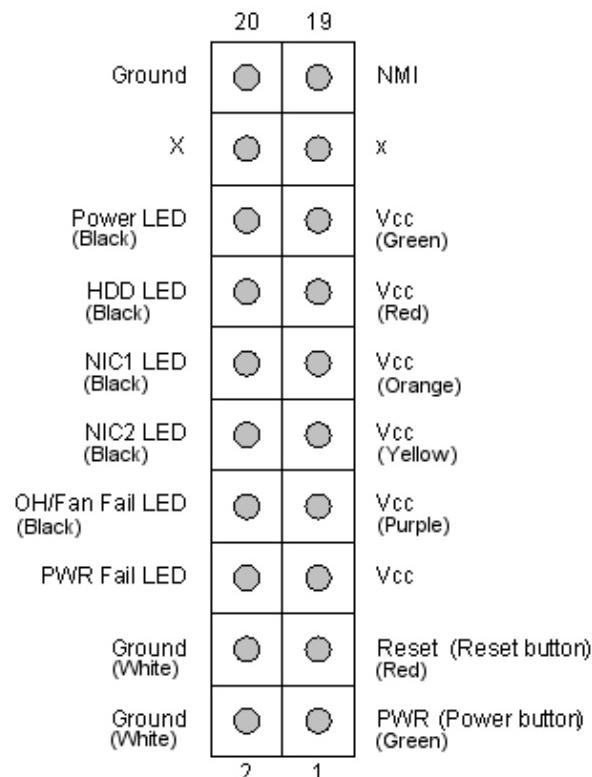


Figure 18: Front panel connectors

16. Return the side cover. See *Removing the Side Cover* on page 93.  
 17. Reconnect all external cables and power cords, and turn on the server.

## 4.6.5 Removing and Installing the Central Processing Unit (CPU)

**Note:** The microprocessor speeds are automatically set for this server so you do not need to set any microprocessor frequency-selection jumpers or switches.

### Preparing to Remove the CPU

**Attention:** When you handle static-sensitive devices, take precautions to avoid damage from static electricity.

1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.
3. Remove the side cover. See *Removing the Side Cover* on page 93.
4. Remove the FusionIN board. See *Removing the FusionIN Board* on page 98.
5. Remove the rear fan.

See *Removing the Rear Fan* on page 123.

### Removing the CPU Fan and Heat Sink Assembly

1. Locate the CPU on the system board.

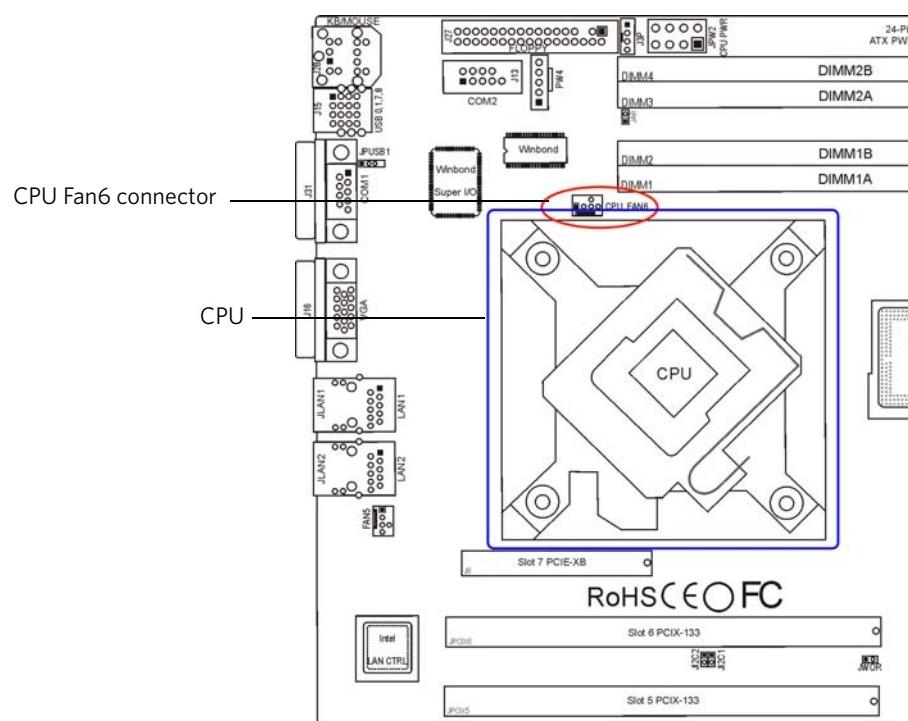
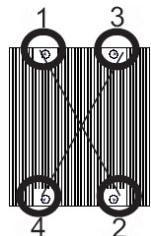


Figure 19: CPU system board location

1. Locate and disconnect the CPU fan cable from the CPU Fan6 connector.

2. Release the four spring screws that secure the CPU fan and heat sink assembly to the system board.

**Important:** Loosen the screws using the crisscross method. First loosen screws 1 and 2, and then screws 3 and 4. Once all four screws are loose, remove them diagonally, one after the other, in the order previously described, until all four spring screws have been removed.



3. Lift the CPU fan and heat sink assembly up and out of the server.

## Removing the Microprocessor

1. Unlock the microprocessor socket.
  - a. Using your thumb, press the socket lever to release the metal frame from its locking position.

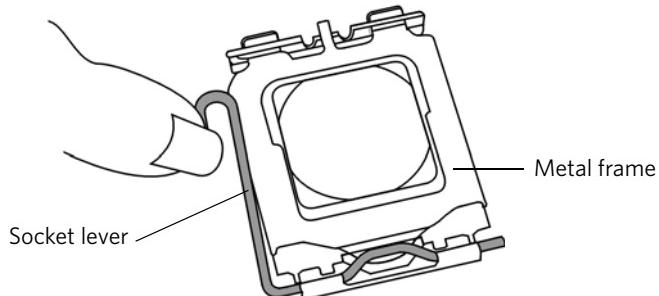


Figure 20: Unlocking the microprocessor socket

- b. Gently lift the socket lever to open the metal frame.

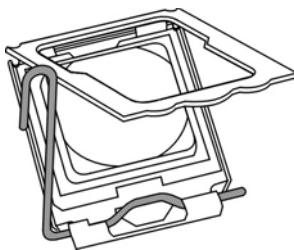
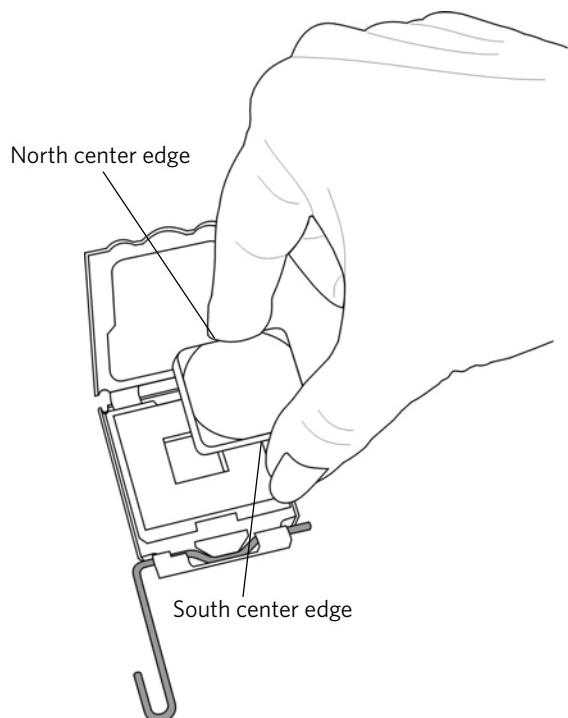


Figure 21: Opening the metal plate

2. Using your thumb and index finger, carefully grasp the microprocessor by its north and south center edges and lift it up and out of the server.



**Figure 22: Removing the microprocessor**

3. Store the microprocessor in an antistatic package for possible future use.

## Installing the Microprocessor

1. Touch the antistatic package containing the new microprocessor to any unpainted metal surface on the server, and then remove the microprocessor from the package.
2. Unlock the microprocessor socket.
  - a. Press the socket lever down to release the load plate from its locking position. The load plate covers the microprocessor socket.

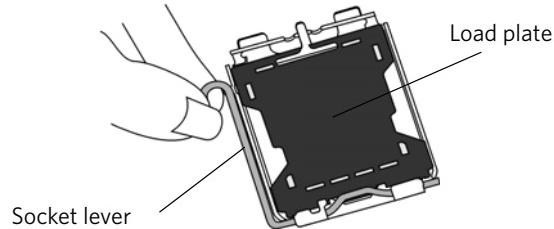


Figure 23: Microprocessor socket lever

- b. Gently lift the socket lever to open the load plate.

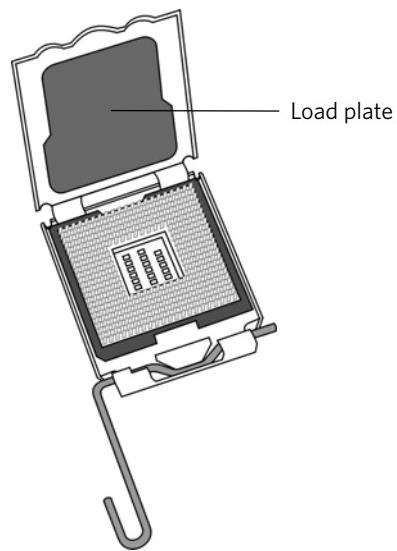


Figure 24: Opening the load plate

- c. Remove the load plate.
3. Locate Pin 1 on the microprocessor socket.

**Note:** Pin 1 is the corner marked with a triangle.

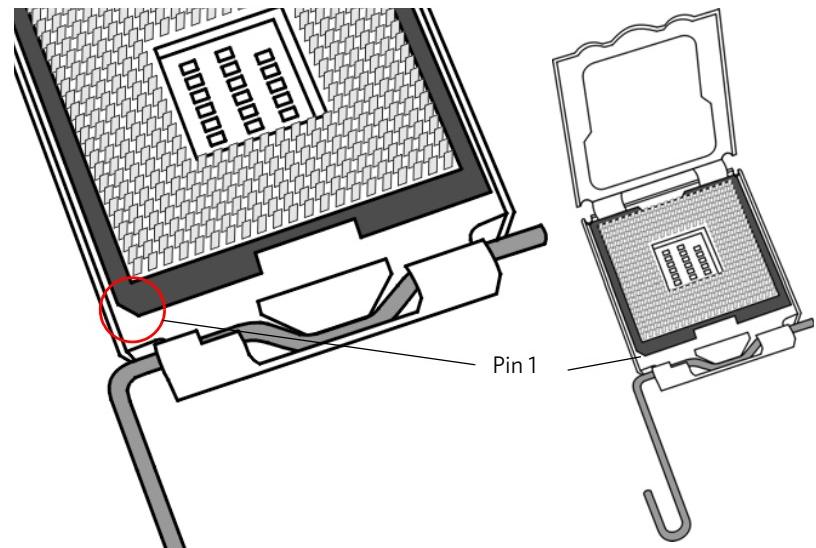


Figure 25: Locating pin 1 on the microprocessor socket

- a. Make sure that Pin 1 of the microprocessor socket is located at the left bottom of the microprocessor housing.
4. Insert the microprocessor into the microprocessor socket.

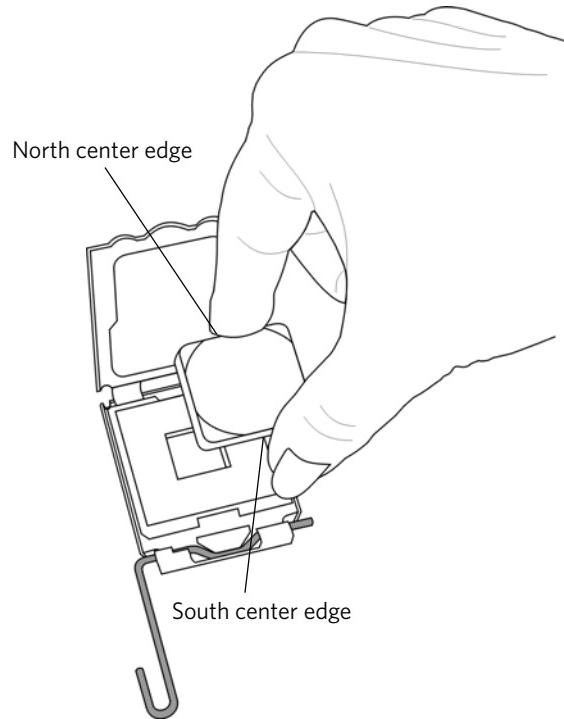


Figure 26: Aligning the microprocessor

- a. Using your thumb and index finger, hold the microprocessor by its north and south center edges and align Pin 1 of the microprocessor with Pin 1 of the microprocessor socket.
- b. When aligned, carefully lower the microprocessor straight down to the socket.
- c. With the microprocessor inside the socket, check the four corners of the microprocessor to make sure that it is properly installed.

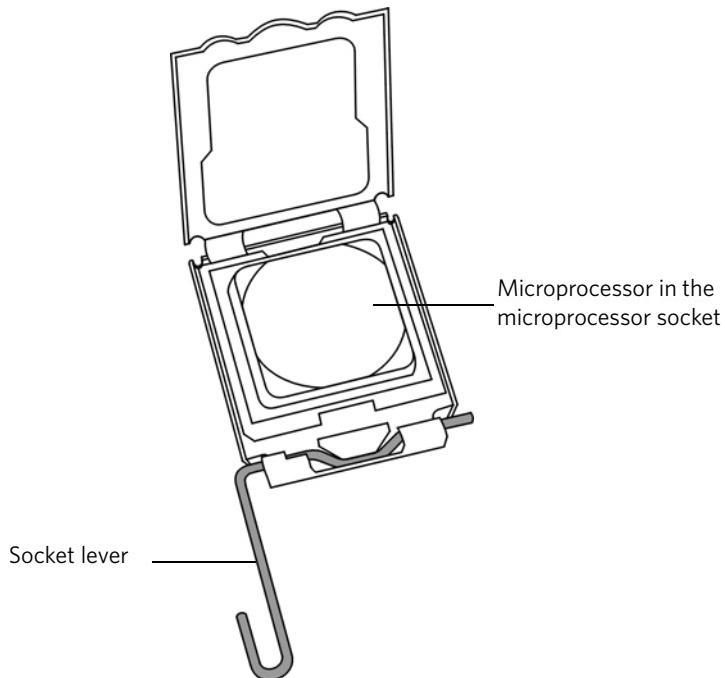


Figure 27: Checking that the microprocessor is properly installed

5. Using your thumb, gently push the socket lever down and lock it in the hook.

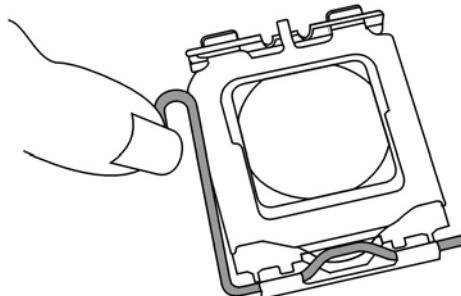


Figure 28: Locking the microprocessor

### Installing the CPU Fan and Heat Sink Assembly

1. If applicable, remove the thin layer of protective film from the copper core of the heat sink.

**WARNING:** If the protective film is not removed from the heat sink, the microprocessor might overheat.



2. Position the CPU fan and heat sink assembly in such a way that the fan wires are close to the microprocessor fan, but do not obstruct other components.
3. Apply thermal grease to the top of the microprocessor.

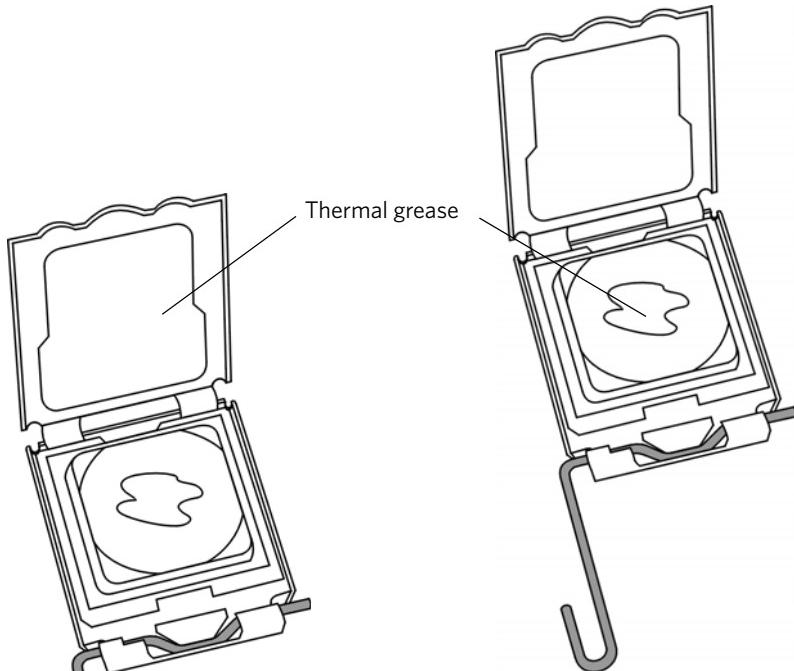


Figure 29: Applying thermal grease

4. Align the spring screws holes in the CPU fan and heat sink assembly with their corresponding holes on the system board. Insert the four spring screws and tighten.

**Important:** Make sure to insert and secure the spring screws using the crisscross method. First insert screws 1 and 2, and lightly secure. Next insert screws 3 and 4, and lightly secure. Once all four screws are in place, tighten them diagonally, one after the other, in the order previously described, until all four screws are tightened.

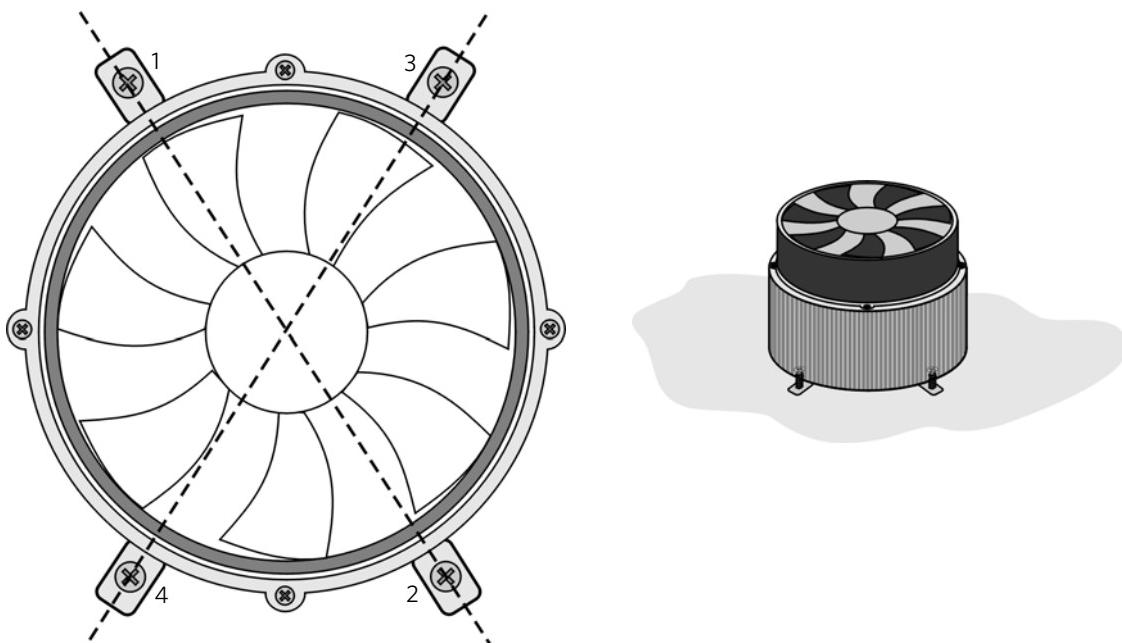


Figure 30: Securing the CPU fan and heat sink assembly

5. Connect the CPU fan cable to the CPU Fan 6 connector. See Figure 19 on page 109.
6. If you have other options to install or remove, do so now.
7. Return the FusionIN board. See *Installing the FusionIN Board* on page 100.
8. Return the rear fan. See *Installing the Rear Fan* on page 124.
9. Return the side cover. See *Returning the Side Cover* on page 94.
10. Reconnect all external cables and power cords, and turn on the server.

#### 4.6.6 Removing and Installing the Battery

If you need to replace the battery, use a lithium battery, model number CR2032. To avoid possible danger, read and comply with the following safety statement.



**WARNING:** There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

The battery is located on the system board below slot 5. See Figure 6 on page 98.

**Note:** After you replace the battery, reconfigure the IC-304 print controller and reset the system date and time.

#### Removing the Battery

1. Follow any special handling and installation instructions supplied with the replacement battery.  
See *System Reliability Considerations* on page 92.
2. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.

3. Remove the side cover. See *Removing the Side Cover* on page 93.
4. Remove the FusionIN board to gain access to the battery.
5. Remove the battery:
  - a. Use one fingernail to press the top of the battery clip away from the battery. The battery pops up when released.
  - b. Use your thumb and index finger to lift the battery from the socket.
  - c. Ensure that the battery clip is touching the base of the battery socket by pressing gently on the clip.

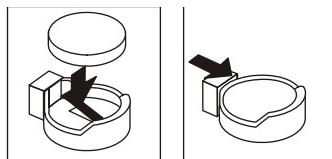


Figure 31: Removing the battery

### Installing the Battery

1. Tilt the battery so that you can insert it into the socket on the side opposite the battery clip.
2. Press the battery down into the socket until it clicks into place. Ensure that the battery clip holds the battery securely.

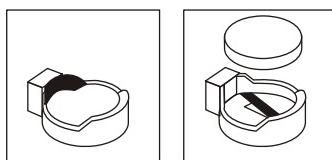


Figure 32: Inserting the new battery

3. Return any adapters that you removed.
4. Return the side cover. See *Returning the Side Cover* on page 94.
5. Reconnect all external cables and power cords, and turn on the server



**CAUTION:** Replacing the battery may cause the configuration to be modified. Verify that the computer BIOS is configured by performing the procedures in *Configuring the Computer BIOS* on page 65.

## 4.7 Removing and Installing the DVD-RW Drive

Perform the following procedures to remove and install the DVD-RW drive.

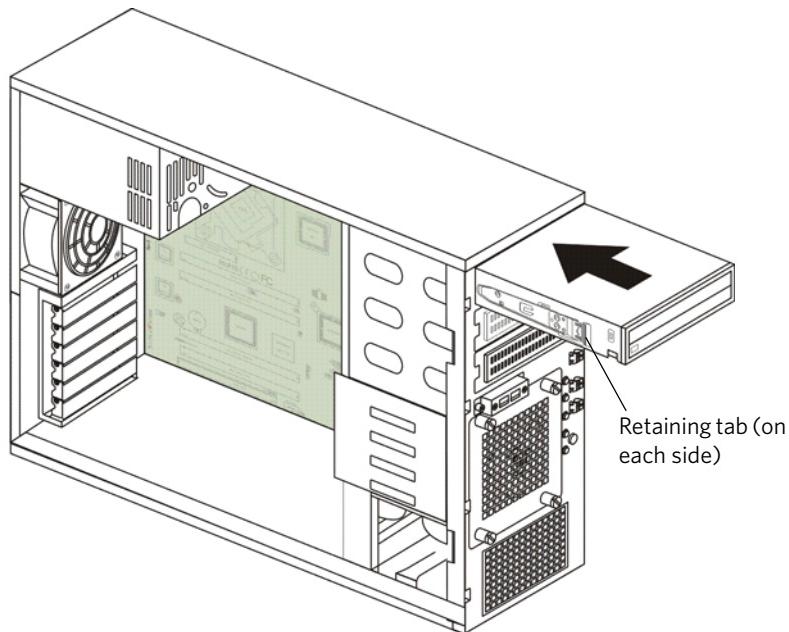


Figure 33: Bay1 DVD-RW drive

### 4.7.1 Removing the DVD-RW Drive

1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and peripheral devices. Disconnect all power cords and external cables.
3. Remove the side cover. See *Removing and Replacing the Side Cover and Front Panel* on page 93.
4. Disconnect the cables connected to the DVD-RW.
5. Press the retaining tabs that hold the DVD-RW drive, then gently slide the drive toward the front of the server and remove the drive.
6. Remove the tab strips from both sides of the DVD-RW drive using a cross-head screwdriver and retain them for future use.

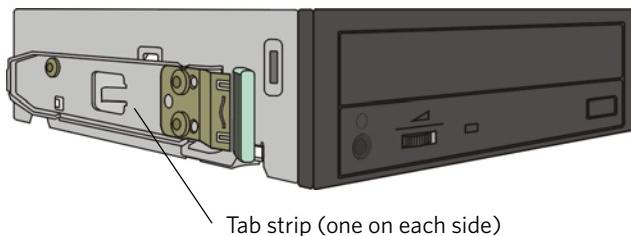


Figure 34: Tab strips on the DVD-RW drive

## 4.7.2 Installing the DVD-RW Drive

1. Install the tab strips to the new DVD-RW drive that you removed from the old DVD-RW drive. See Figure 34.
2. Slide the DVD-RW drive into the DVD-RW drive cage, making sure that the drive locks into place.
3. Reconnect the cables to the DVD-RW drive.
4. Return the side cover. See *Returning the Side Cover* on page 94.
5. Reconnect all external cables and power cords, and turn on the server.

## 4.8 Removing and Installing a Hard Disk Drive

Perform the following procedures to remove and install the three hard disk drives.

**Attention:**

System disk: Before replacing or formatting the system disk, ensure that you have made a note of the computer name, TCP/IP information (for example DHCP = Yes), and OEM Windows XP Professional Product ID#. Back up folders or jobs in **C** and **D** partitions to an external device or network.

Image disks: Before replacing an image disk, ensure that you back up all jobs (such as: *PostScript*, High-Res, Variable Print Specification, and PDF jobs) to an external device or network.

### 4.8.1 Removing a Hard Disk Drive

1. Turn off the IC-304 print controller and all peripheral devices. Disconnect all external cables and power cords.
2. Remove the side cover. See *Removing the Side Cover* on page 93.  
**Tip:** You may find it easier to work if you lay the server on its side.
3. Disconnect the SATA2, data, and power cables from all the hard disks.
4. Remove the three screws that secure the drive cage to the server chassis.

5. Lift the drive cage up and out of the server.

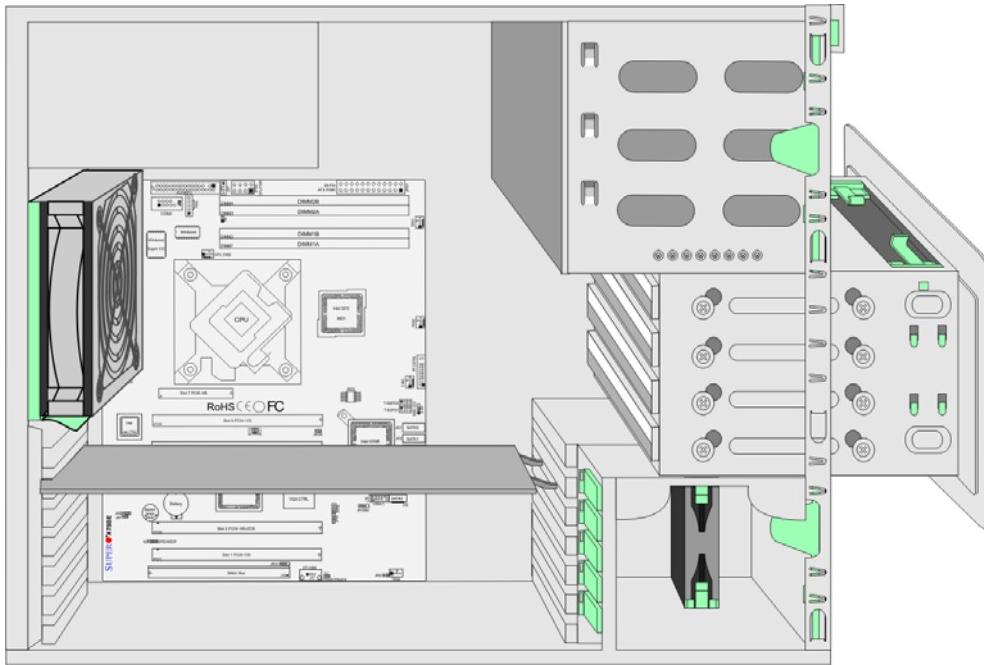


Figure 35: Removing a hard disk drive

6. Identify which hard disk you want to remove.
7. Loosen the two screws on either side of the disk drive and pull the disk drive out of the chassis.

## Installing a Hard Disk

1. Slide the hard disk drive into the drive cage.
2. Insert the four screws that secure the hard disk drive to the drive cage, and tighten.
3. Insert the drive cage inside the chassis, and over the locating tabs in the front wall of the chassis.
4. Align the holes in the drive cage with the matching holes in the chassis.
5. Insert the three drive-cage screws and tighten.

6. Connect the SATA2 cables into the back of each drive. Make sure that the other end of each cable is connected to the appropriate connector on the system board.

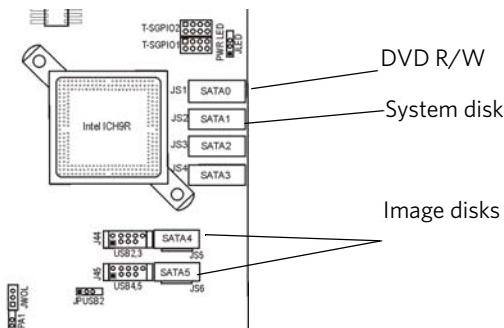


Figure 36: SATA2 connectors on the system board

7. Route each cable so that it does not block the air flow to the rear of the drives.
  8. Connect a power cable to the back of each drive. The connectors are keyed and can be inserted only one way.
- Note:** Do not route the cables over the microprocessor and memory.
9. If you have other options to remove or replace, do so now.
  10. Return the side cover. See *Returning the Side Cover* on page 94.
  11. Reconnect all external cables and power cords, and turn on the server.

## 4.9 Removing and Installing the Power Supply

Perform the following procedures to remove and install the power supply.

**Tip:** It is easier to perform the following procedures if the server is on its side.

### 4.9.1 Removing the Power Supply

1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and peripheral devices.
3. Disconnect all power cords and external cables.
4. Remove the side cover. See *Removing the Side Cover* on page 93.
5. Disconnect the power supply cables to the drives, and to the system board.
6. Remove the four screws that secure the power supply to the server from the rear of the server, using one hand to hold the power supply inside the server. See Figure 37 on page 122.

7. Gently move the power supply out of the server.

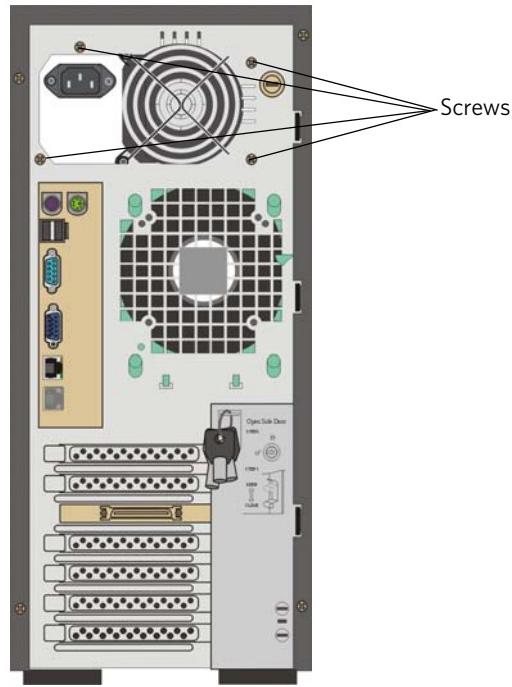


Figure 37: Removing the power supply unit

#### 4.9.2 Installing the Power Supply

1. Orient the power supply and insert it into the server.
2. Insert the power supply into the opening at the rear of the chassis.
3. Align the holes in the power supply with the holes in the chassis.
4. Insert the four power-supply screws and tighten.
5. Reconnect the internal cables from the power supply to the system board and drives.
6. Return the side cover. See *Returning the Side Cover* on page 94.
7. Reconnect all external cables and power cords, and turn on the server.

## 4.10 Removing and Installing the Rear Fan

Perform the following procedures to remove and install the rear fan.

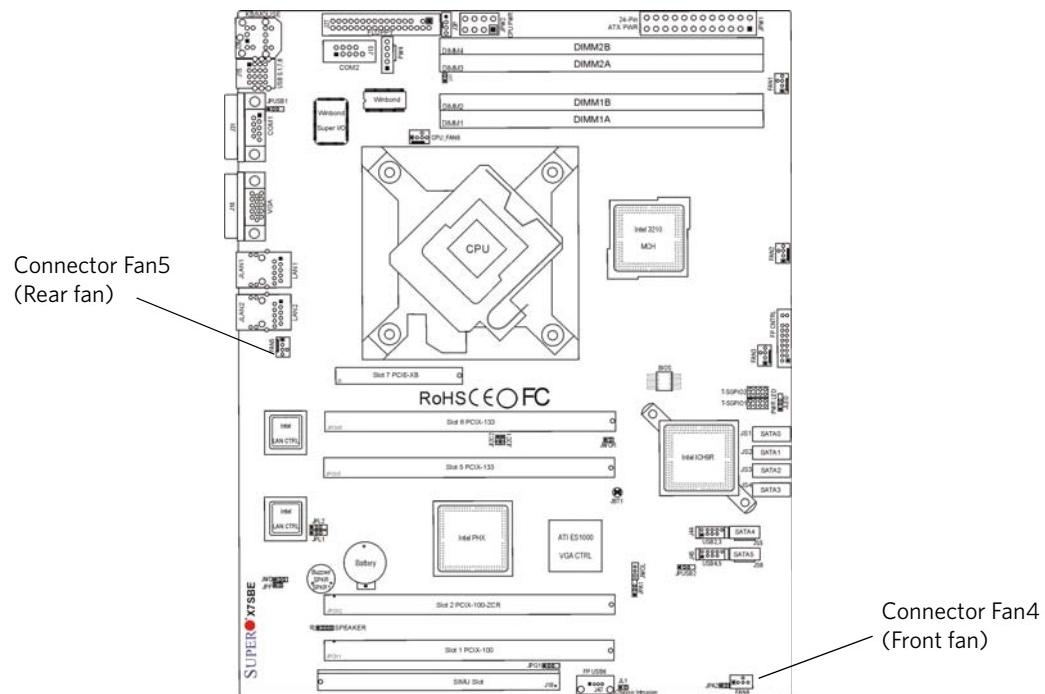


Figure 38: Rear and front fan connector locations

### 4.10.1 Removing the Rear Fan

1. Review *Safety Information (Multi-Language)* on page ix.
2. Turn off the IC-304 print controller and peripheral devices. Disconnect all power cords and external cables.
3. Remove the side cover. See *Removing the Side Cover* on page 93.
4. Disconnect the fan cable from the system board connector (OH FAN).
5. Press the two locking tabs, protruding through the outside of the rear of the server, outward. See Figure 39 on page 124.
6. Lift the fan upward and out of the server.

7. Remove the four screws that secure the fan to the rear-fan bracket. See Figure 39 on page 124.

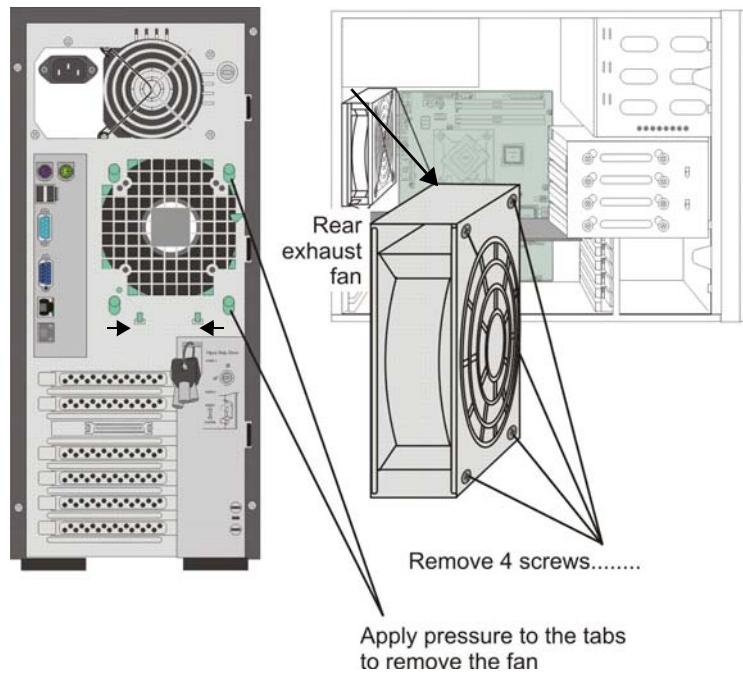


Figure 39: Rear fan

#### 4.10.2 Installing the Rear Fan

1. Align the four holes in the new fan with the matching holes in the rear-fan bracket, then insert the four screws and tighten.
2. Place the rear fan in position at the rear of the server.
3. Guide the two locking tabs through the top of the slots, while aligning the other four tabs with their respective slots.
4. Press the rear-fan bracket against the rear of the server, until all the tabs are in their slots, then move the rear-fan bracket downward until it locks into position.
5. Reconnect the fan cable to the system board.
6. Return the side cover. See *Returning the Side Cover* on page 94.
7. Reconnect all external cables and power cords, and turn on the server.

# A

## Specifications and Standards

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## A.1 Environmental Requirements

This chapter lists the software installation steps, includes specifications for the IC-304 print controller operating environment, and provides a list of the international safety standards to which the IC-304 print controller conforms.

## A.2 Installation Steps

- Software installation—time: approximately 30 minutes
- Full installation, operating and software—time: approximately 1.5 hours
- System loading—time: approximately 15 minutes

## A.3 Specifications

### A.3.1 Dimensions and Weight

<b>IC-304 Print Controller</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Unpacked	533×177×430	21.0×7.0×16.9	16 kg/35.3 lb.
Packed	600×520×530	23.6×20.5×20.9	28 kg/61 lb.

**WARNING:**

- 
- The IC-304 print controller is heavy, and must be lifted by two people.
  - Each person must place both hands underneath the IC-304 print controller from the sides.

<b>Densitometer (DTP34) [Optional]</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Unpacked	13×5×5	5.1×1.9×1.9	1.0 kg/2.2 lb.
Packed	33×29×16	12.9×11.4×6.3	3.0 kg/6.6 lb.

<b>Accessories</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Packed	425×385×70	16.7×15.2×2.76	2.0 kg/4.4 lb.

<b>Monitor 17"</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Unpacked	406x389x102	16.0x15.3x4.0	4.1 kg/9.0 lb.
Packed	452x457x160	17.8x18.0x6.3	5.4 kg/12 lb.

<b>Keyboard</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Unpacked	470×150×40	18.5×5.9×1.57	2.0 kg/4.4 lb.
Packed	450×140×30	17.7×5.5×1.18	1.0 kg/2.2 lb.

<b>Stand (Contents and Carton) [Optional]</b>	<b>D x W x H (mm)</b>	<b>D x W x H (in.)</b>	<b>Weight</b>
Unpacked	720×700×1050	28.4×27.6×41.5	27 kg/59.5 lb.
Packed+Pallet	1130×755×385	44.5×30×15	45 kg/99.2 lb.

## A.4 Operating Environment

### A.4.1 Electrical (Color Server and Monitor)

Input Voltage Range	100-127/200-240 VAC
Input Frequency Range	60 to 50 Hz
Ampere Rating	2.5/1.25 A

### A.4.2 Energy Consumption

- 220 VAC-1.25 AAC => 275 W = 939 BTU/hour
- 110 VAC-2.25 AAC => 247.5 W = 845 BTU/hour

### A.4.3 Transportability

- There is no need for special tools for system transportation.
- The system is without wheels.

### A.4.4 Temperature and Relative Humidity

<b>Items complying with IEC 721-3-1, 2, 3</b>		
Temperature	Operating	15° C to 40° C (59° F to 104° F)
	Storage	-25° C to 70° C (-77° F to 158° F)

Relative humidity	Operating	5% to 85%
	Storage	Max 95% @ 50° C (122° F)
<b>Items complying with IEC 721-3-0,1, 2, 3</b>		
Vibration	Shipping	Acceleration spectral density of $1\text{m}^2/\text{s}^3$ in frequency range of 10–200 Hz and acceleration spectral density of $0.3 \text{ m}^2/\text{sec}^3$ in frequency range of 200–2000 Hz.
Free fall	Shipping	0.25 m
Static load	Shipping	10 Kpa
Stacking	Shipping	3 boxes

## A.5 Standards

### A.5.1 Safety Approvals

United States and Canada	cCSAus marking for the US and Canada. Standards: UL 60950-1 1st Edition, CAN/CSA - C22.2 No. 60950-1-03
European Union	EU Low Voltage Directive 73/23/EEC, standards EN60950: 2000 and EN60950-1: 2001
CB Countries	CB Report & Certificate to standards IEC60950: 1999 3rd Edition and IEC60950-1:2001 1st Edition plus National differences.

The CB reports have supplements that together include the national differences for the following countries:

Argentina	Hungary	Singapore
Australia	India	Slovakia
Austria	Ireland	Slovenia
Belgium	Israel	South Africa
Brazil	Italy	Spain
Canada	Japan	Sweden
China	Korea	Switzerland
Czech Republic	Malaysia	Turkey
Denmark	Netherlands	Ukraine
Finland	Norway	United Kingdom
France	Poland	United States

Germany	Portugal	
Greece	Russian Federation	

### A.5.2 EMC Requirements

United States	FCC 47CFR part 15: 2005, subpart B class B
Canada	ICES-003: 2004 issue 4, class B
Japan	VCCI V-3/2005.04, class B
Australia and New Zealand	CISPR 22: 2004, class B
Europe	EMC Directive 89/336/EEC
European EMC standards	
Radiated Emissions	EN55022:1998+A1:2000+A2:2003 Class B
Harmonics	EN61000-3-2:2000 + A2: 2005
Flicker	EN61000-3-3:1995+ A1:2001
Immunity STD	EN55024:1998+A1:2001+A2:2003
Immunity to Electro Static Discharge	EN61000-4-2: 1995+A1(98)+A2(01)
Immunity to Radiated Electro Magnetic field	EN61000-4-3: 2002 +A1(02)
Immunity to Fast transients	EN61000-4-4: 2004
Immunity to Voltage Surges	EN61000-4-5: 1995+ A1(01)
Immunity to radio frequency Conducted Disturbances	EN61000-4-6: 1996 +A1(01)
Immunity to power frequency Magnetic Fields	EN61000-4-8: 1993 +A1(01)
Immunity to supply Voltage Dips, and Variations	EN61000-4-11: 2004

## A.6 Reliability and Maintenance

Prediction of Mean Time Between Failure (MTBF) is based on Parts Stress method of B33216; parts stress method of Bellcore TR-NWT-332Issue6 (12/97). The prediction was performed with CARE software from BQR Israel.

Environment: GB Ambient temperature: 40° C (104° F).

MTBF Calculation Results	MTBF (hours)
Processor, Intel Core2 Duo, 2.4 GHz, 4M cache, 1066 MHz FSB	125,000,000
DDR SDRAM, 256 MB, SODIMM200, 4x32Mx16, 6NS, LF	4,591,368

IC, DDR SDRAM, 512 MB, 2.7 GB/S, 200P-SODIMM, LF	4,591,368
FusionIN board assembly	148,685
DVD-RW drive	90,909
Monitor TFT, LCD 17 in.	54,548
Hard disk drive, SATA2, 80 GB, 7200 RPM	1,091,346
Memory, 512 MB, DDR2 ECC	4,591,368
Keyboard and Mouse, basic	54,546
Power supply, 350W	90,909
System board, SuperMicro, PDSME+	330,142
Fan, 12 V wiring assy. (92 x 92 mm)	45,453
Fan, computer rear, (120 x 120 mm)	36,364
Fan, CPU CORE2 DUO Processor	45,455

### A.6.1 General Maintenance Information

<b>General Maintenance Information</b>	
Periodic call-on	None
Failure-recovery period	1.5 hours
Space required for service	2.0 x 1.8 meters (6.7 x 6 feet)
Service tools	<ul style="list-style-type: none"> <li>▪ Screwdriver (flat and Phillips)</li> <li>▪ Antistatic kit</li> <li>▪ Side cutters</li> <li>▪ DVM</li> </ul>
<b>Typical Space Required for Installation</b>	
Desktop position	1200 x 1200 mm (47.2 x 47.2 in.)
Stand position	800 x 800 mm (31.5 x 31.5 in.)



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